

- C - Three war years cold package

Suddenly Little Ice Age returned

Imagine that a meteoroid hit earth. Consequently, air temperature would rise with several degrees over a wide region. Most people would insist to be informed and to understand the matter. Assume that winter temperatures fall several degrees below average but that no one talks about it because there is war. That was actually the case during the winter 1939/40 when, in several locations in Northern Europe, average temperatures were 3, 4, 5 or more degrees lower than during all previous decades.

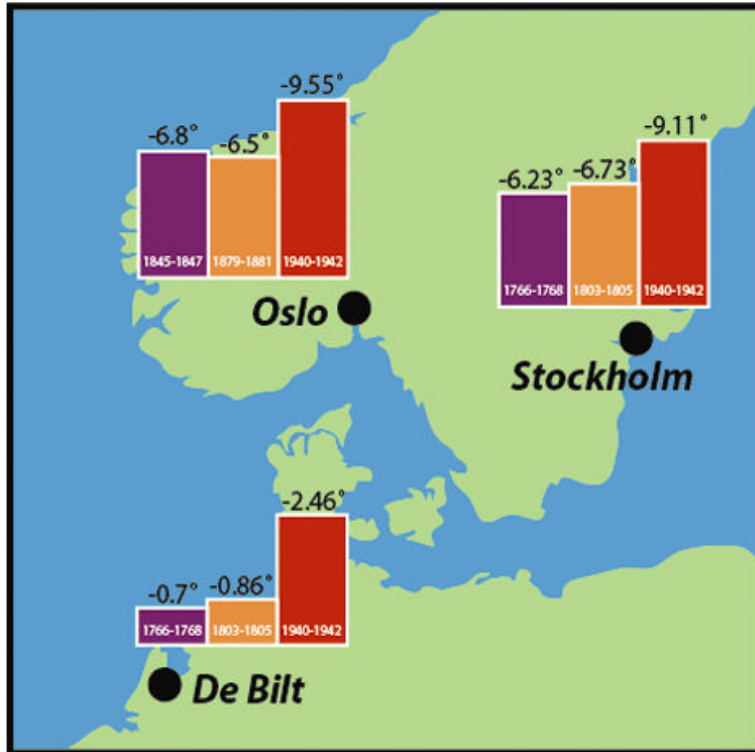
One cold winter may not convince everyone that naval war can be as destructive to climate as a major natural event. Therefore, the initial three war winters will be analysed as a 'package' and each individual winter analysis will demonstrate that there is an ample connection between the arctic war winter and the naval warfare.

Although every of these three winters can clearly stand individually as proof for the anthropogenic influences on weather, their succession is a particular compelling evidence on the naval war impact on regional weather modification. Already in 1942, the Swedish meteorologist Gösta Liljequist¹³⁹ stressed that the phenomenon of three successive extreme winters happens very seldom in Northern Europe. The three war winters easily took the leading position among all temperature observation done in the last 250 years.

Liljequist's remark is logical and easy to explain. Northern Europe is half-continent, half-water. Due to winds, waters release more heat during the winter season. Once cooled down, wind ceases due to the replacement of the cyclone activities by dry, cold air coming with high pressure (anti-cyclones). The less sea surface is disturbed, the less heat is released, until the sea ice appears. In other words, any cold but

139 Liljequist, Gösta H. (1941/42); 'Isvintern 1941/42'; in: *Statens Meteorologisk – Hydrografiska Anstalt*, No.4, 1942, pp.2-15.

calm winter situation keeps stored heat at deeper sea level during winter season, which is available for the next winter.



A comparison of the three coldest winters in succession

Since temperatures records have been taken provides substantial evidence on the influence of naval war. Not are the three war winters 1939-1942 in every case the coldest, but they 'beat' the second and third placed winter services by lengths.

NOTE: Compare first the difference between 2nd and 3rd placed, and than the difference they have to the three winters series 1939/40 to 1941/42, with up to 2,7 degrees Celsius difference (Oslo)!

Naval warfare interferes and destroys this natural process. Whether sea surface water is warm or cold, navigation and warfare still affect it. Seawater is churned and turned with no regard that North and Baltic Sea can sustain maritime winter only when they are able to release heat according to statistical average. That was grossly

overturned during the first three war winters. Since 1942, when naval war turned global, Europe's sea areas lost their specific regional 'war-made' winter weather. Extensive naval war in North Atlantic and Pacific easily overruled any special impact of North and Baltic Sea, and thereby ending the three-year arctic winter series.

Actually, the statistics for the war winter temperatures between 1939 and 1942 is nothing less than a "Big Bang". In five out of six locations nothing comparable has ever happened since temperature observations have been made and, in only one case, the exception (Wiesbaden) happened 100 years ago. In some places, temperatures were up to 2° degrees lower per month than the next coldest three-year series. This applies for the core winter months January and February as well, when the previous December is included. The distinction between the near-coast location and the inland location deserves our particular attention, too.

Near Seaside Location

Figures show monthly mean temperatures over a three years period
 [Mean of six (Jan/Feb) respectively nine (Dec, Jan & Feb) months]

De Bilt/The Netherlands, Period 1706 -1993			Oslo/Norway, Period 1816 -1988		
3 years	Jan& Feb	Dec-Feb.	3 years	Jan&Feb	Dec-Feb
Long term	+ 4,5°C	+ 5,3°C	Long term	- 3,6°C	- 3,4°C
1716-18	- 0,7°C	- 0,12°C	1845-47	- 6,8°	- 6,9°C
1829-31	- 0,86°C	- 0,45°C	1879-81	- 6,5°C	- 6,5°C
1940-42	-2,46°C	- 1,32°C	1940-42	-9,55°C	- 7,86°C

Stockholm/Sweden, Period 1756 –1988		
3 years	Jan. & Feb.	Dec.- Feb.
Long-term	- 3°C	- 2,5°C
1766-1768	- 6,23°C	- 5,2°C
1803-1805	- 6,73°C	- 6,3°C
1940-1942	- 9,11°C	- 6,8°C

It is astonishing that war winter 1940-1942 did not only break all the records but left the next coldest three-year winter package behind. This happened particularly during core winter months January and February. Each of these six winter months was colder with 1,6°C (De Bilt), 2,7°C (Oslo), and 2,4°C (Stockholm) than any previous cold winter, whereby the difference between the 2nd and the 3rd rank was insignificant (less than 0,5°C). The temperature figure for 1940/42 is as unbelievable as a story about a 100-meter sprinter who would have broken the 10 seconds world record in only 8 seconds.

Furthermore, it is revealing that, from this group of three, Oslo (the most Atlantic location, at least from the distance point of view) is taking the lead, presumably due to the very cold sub-surface water which is 700-meter deep at Skagerrak. It is not a coincidence that the coldest January in Oslo series is January 1941. Only half a year earlier, since April 1940, Germany had occupied Norway and had carried on naval activities of huge proportions along the Norwegian coasts. We cannot ignore the fact that the three coldest months of January in all the Oslo series in almost 200 years occurred during the war, more precisely in 1941 (-13°C), 1942 (-12,1°C) and January 1917, with -11,6°C (during World War I, winter which should be carefully analysed)¹⁴⁰.

The three described winters, which are a true record-breaking series, are a strong indication of the role the naval warfare has played. The impact of the naval war is obvious and it is proved by the fact that in the seaside locations the temperature record had been broken at a much higher degree than in inland locations, as the following table proves it:

140 It should not be so much of a surprise that the third coldest January occurred during WWI. There were also a lot of naval activities in all North Sea regions. Since late 1916, naval warfare stepped into a new age of destruction, due to newly developed sea mines, submarines and depth charges (see chapter on WWI, below). In so far it might be not too far fetched to assume any link between the biggest naval encounter ever, the Battle of Jutland on the 31st of May 1916 and the record January 1941.

Inland Location

Figures show monthly mean temperatures over a three years period
 [Mean of six (Jan/Feb) respectively nine (Dec, Jan & Feb) months]

Paris/ France, Period 1757 -1993			Wiesbaden/Germany, Period 1757 -1961		
3 years	Jan&Feb	Dec-Feb	3 years	Jan& Feb	Dec-Feb
Long-term	+3,8°C	+4°C	Long-term	+1,5°C	+1,8°C
1829-31	+ 1,5°C	+1,4°C	1829-31	- 3,6°C	- 2,7°C
1879-81	+ 1,8°C	+1,2°C	1840-42	- 1,4°C	-0,7°C
194042	+ 0,6°C	+1,1°C	1940-42	- 3,3°C	- 2,0°C

Basel/Switzerland, Period 1755 - 1970		
3 years	Jan& Feb	Dec-Feb
long-term mean	+ 1,5°C	+ 1,7°C
1766-1768	- 2,2°C	- 2,1°C
1829-1831	- 2,8°C	- 2,2°C
1940-1942	- 2,9°C	- 2,2°C

Even Paris, which is not so far away from the sea, can blame the war at sea for the temperature modifications. In Wiesbaden (near Frankfurt), winters 1829-1831 kept the lead. Even three stations in Great Britain confirm the January/February record war series 1940-1942, viz. Greenwich¹⁴¹, Oxford¹⁴² and Edinburgh¹⁴³. From these three, Edinburgh has the smallest negative deviation, with 0,17°C per month, presumably due to the fact that the warm Atlantic current flows into the North Sea in considerable quantities at any time of the year, and the Atlantic is not far away anyhow, while Greenwich and Oxford deviated with 0,7°C per month as compared to the next coldest series (see Footnote).

All the proofs demonstrate that negative temperature records are far away from being a mere coincidence. Sunrays played a minor role during the main winter months, while the North and Baltic Seas can contribute to the winter air temperature only through their available heat reservoir. If that has been reduced too early, then the regional

141 Greenwich 1841-1960; Sum January/February, 1940-42 (+ 8,7°C), 1879/81 (+12.8°C), and 1891-93(+19,5°C).

142 Oxford 1828-1980; Sum January/February, 1940-42 (+ 7,6°C), 1879-81 (+11,8°C), and 1829-31 (+12,2°C).

143 Edinburgh 1764-1960; Sum January/February 1940-42 (+ 7,6°C), 1836-39 (+ 8,6°C), and 1774-76 (+ 10,4°C).

temperature will drop below statistical averages, and records can fall. 1000 naval vessels crossing sensitive seas in combat missions day and night are as dangerous as a hurricane squeezing heat out of the sea. And if a hurricane goes by after a day or two, naval warfare was a constant presence for months, since the 1st of September 1939.

The following sections will focus, in detail, on each of the three initial war winters: 1939/40, 1940/41, and 1941/42.