Pacific Congress on Marine Science & Technology (PACON) 22nd International Conference

International Partnerships in Marine Science and Technology: A Vehicle for Improving Pacific Rim Relations and Resource Management



1 to 5 June , 2010
University of Hawai`i at Hilo,
Hilo, Hawai`i USA

http://blog.hawaii.edu/pacon/conferences/2010-conferences/

Saturday, 5th June, Session 8B, 03:00pm to 05:20pm, Chair: Lorenz Magaard

The Arctic European winters 1939/40 to 1941/42 caused by naval war? How to substantiate?

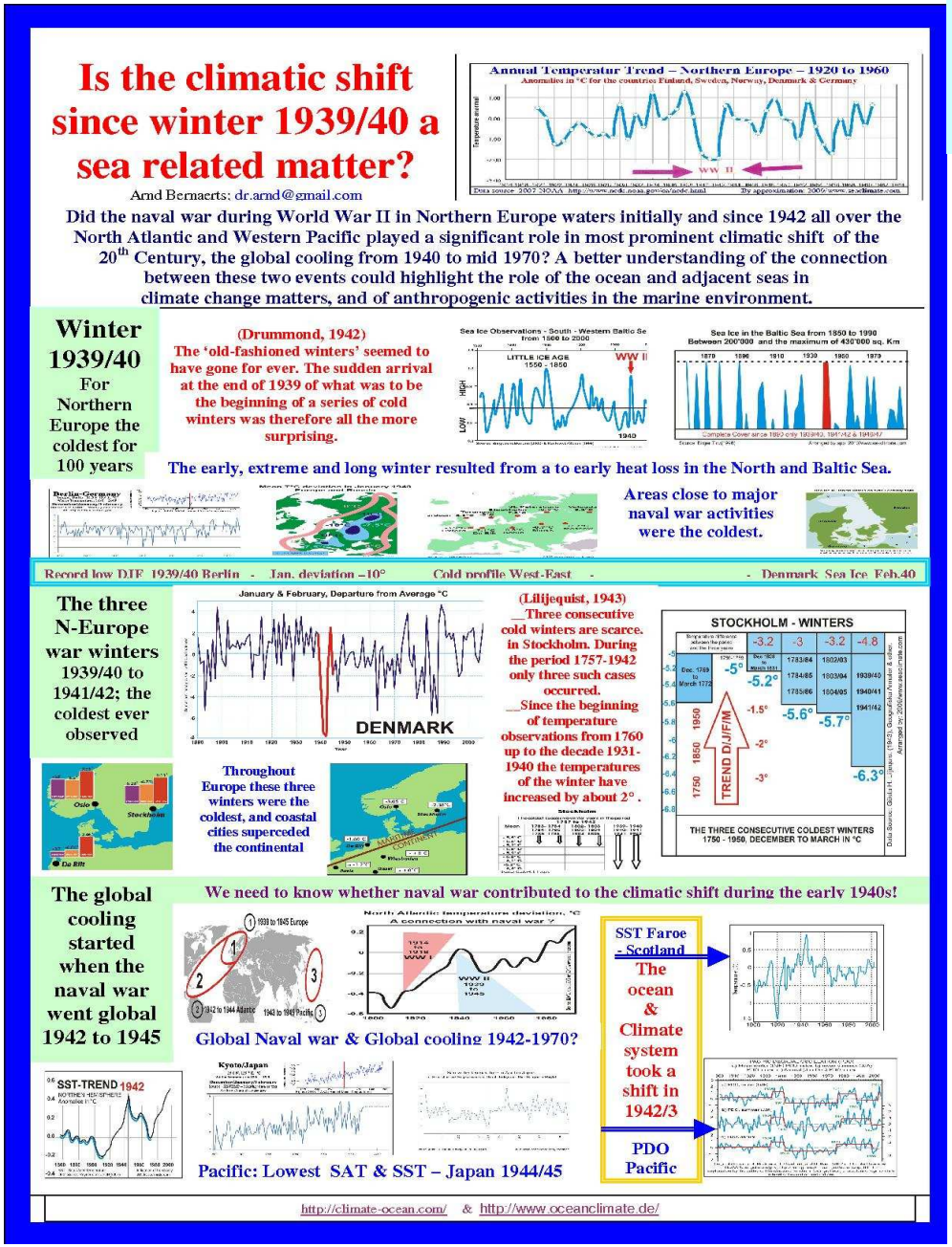
By Arnd Bernaerts

Abstract*)

There is no causation without correlation!
Global Cooling and Naval War?

A better understanding of the perfect time correlation between naval activities during the Second World War and the start of a three decade long global cooling since 1940 could prove the role that anthropogenic activities may have had on the marine environment and climatic change matters. Although the global temperatures had been at the highest in the 1930s since the mid 19th Century, Northern Europe was suddenly back in the Little Ice Age after only four months in WWII. The study provides an overview of links between naval activities and a change of air temperatures, first during the extreme cold winters in Europe 1939/40, 1940/41 and 1941/42, followed by a three decade long global cooling. A significant fact of the three war winters in Europe is their appearance in succession, which is rare. As soon as the naval went global after December 1941, a simultaneous decrease of sea and air temperature throughout the Northern Hemisphere became evident. The number of links between human activities during WWII and temperature changes should not be ignored.

***) The submission of a paper to PACON 2010 for being published in the Conference Proceedings is intended prior deadline on 31 August 2010. For further information, date of publication, and access to conference papers consult PACON homepage.**



Theme-Poster at PACON 2010, Hilo

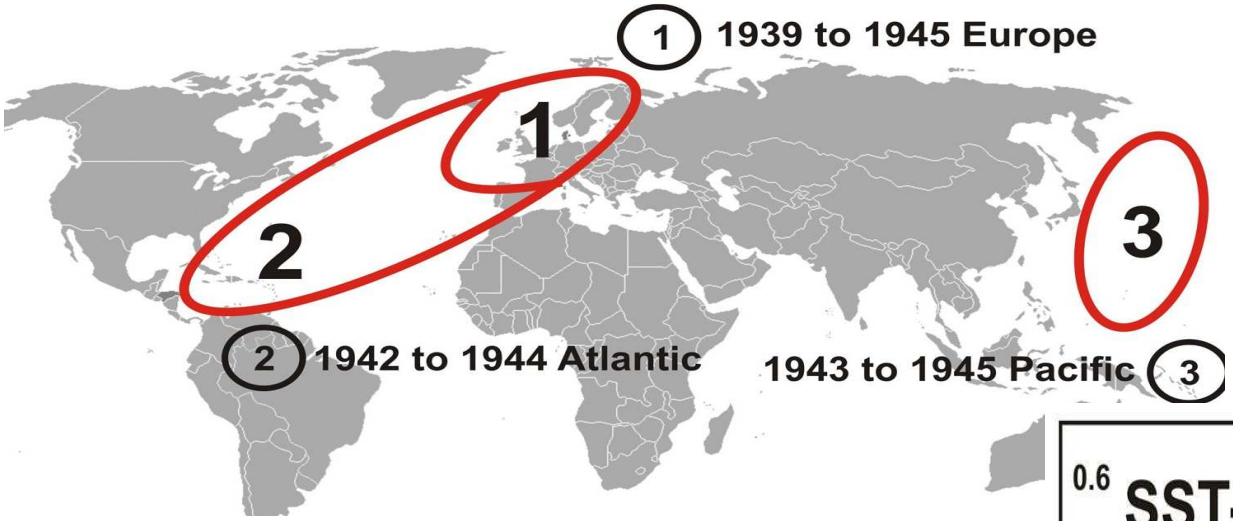
Why should we know all about the sudden return of very cold winters in Northern Europe and a phase of global cooling in winter 1939/40

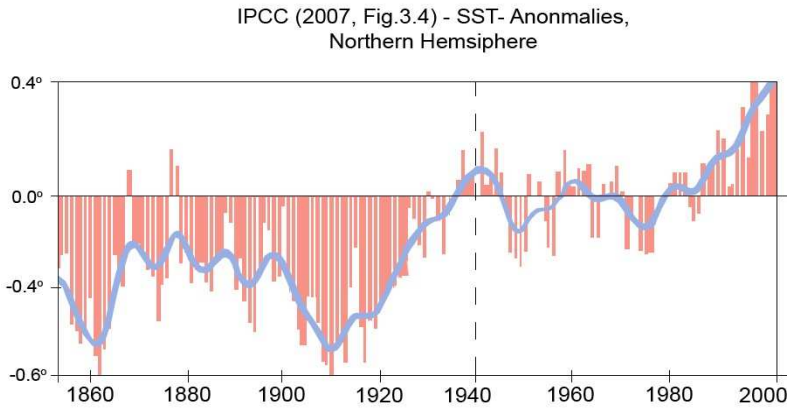
?

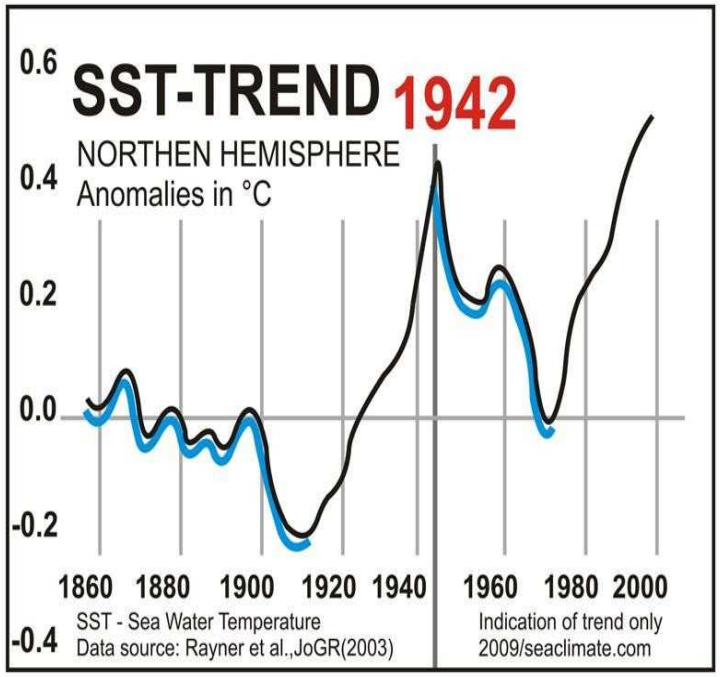
The phase of global cooling in the mid of the last century (1940 to 1975) could possibly demonstrate two vital aspects:

- **The sensibility of the oceans to external forces.**
- **That naval war activities – as during WWII – need to be regarded as external force!**

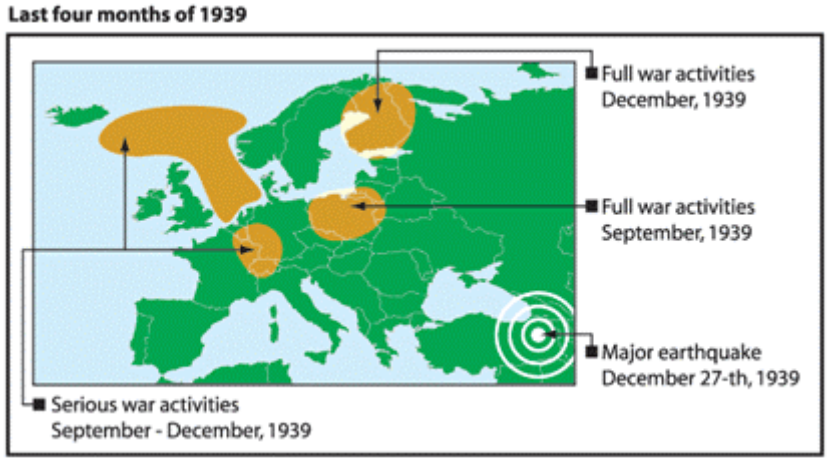
The three naval war phases during WWII



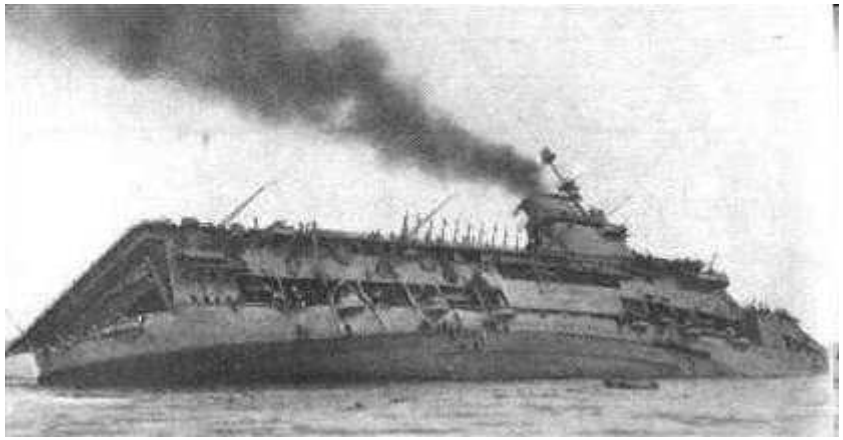




World War II commenced on 1st September 1939



1. Naval war in the North and Baltic Sea, can release the heat stored during the summer more quickly than usually.



September 17 1939, HMS Courageous torpedoed by U-29.

2. Naval war in the deep sea can alter the :

___temperature, and

___salinity

structure of the sea surface layer down to several dozen meters.

The coldest winter for more than 100 years;
in Berlin for 110 years

Berlin/Germany

B-Dahlem, 52.5 N 13.3 E, °C
Winter Temperatures 1880 – 1970
December/January/February
Source: GISTEMP – Monthly data as text
At: http://data.giss.nasa.gov

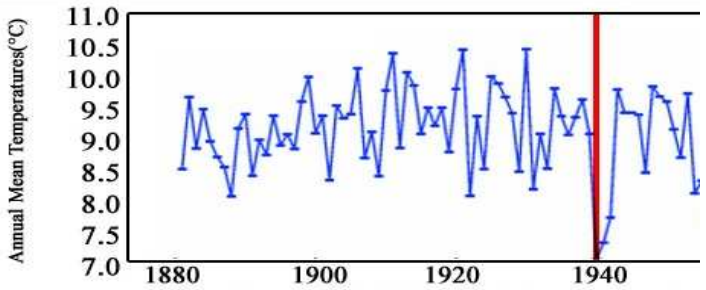
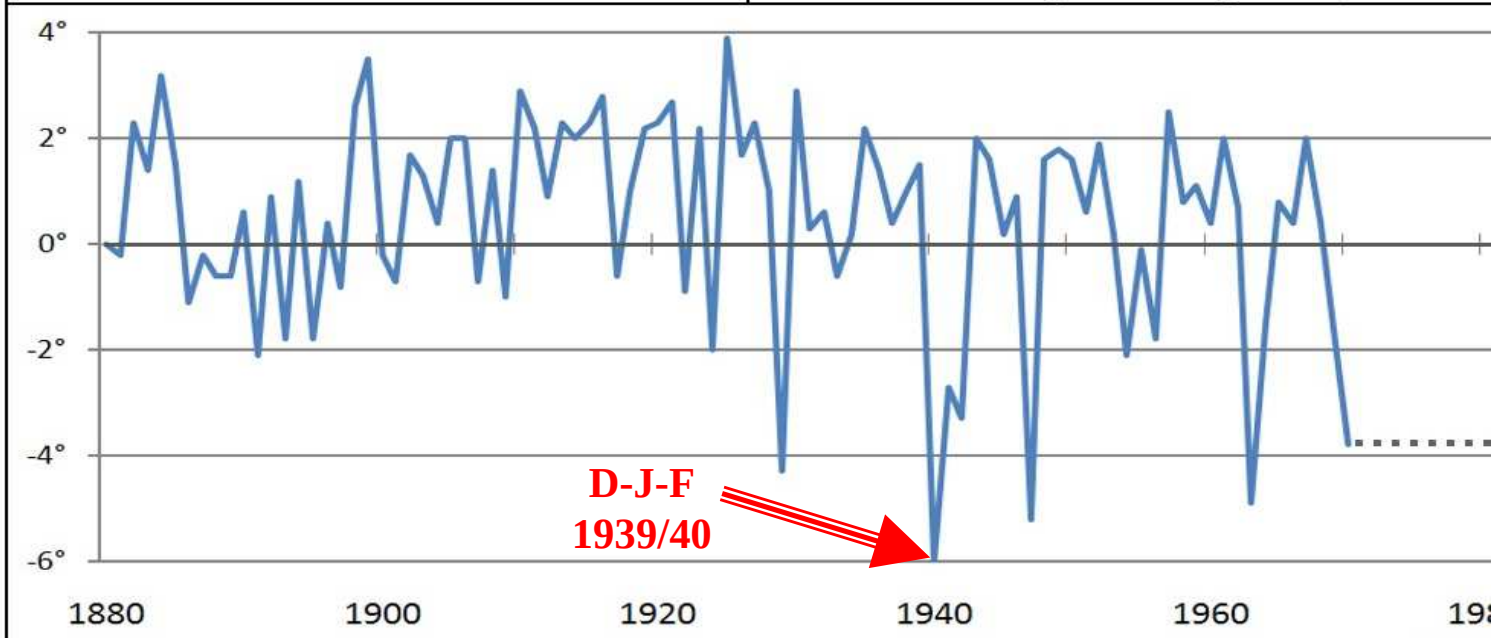
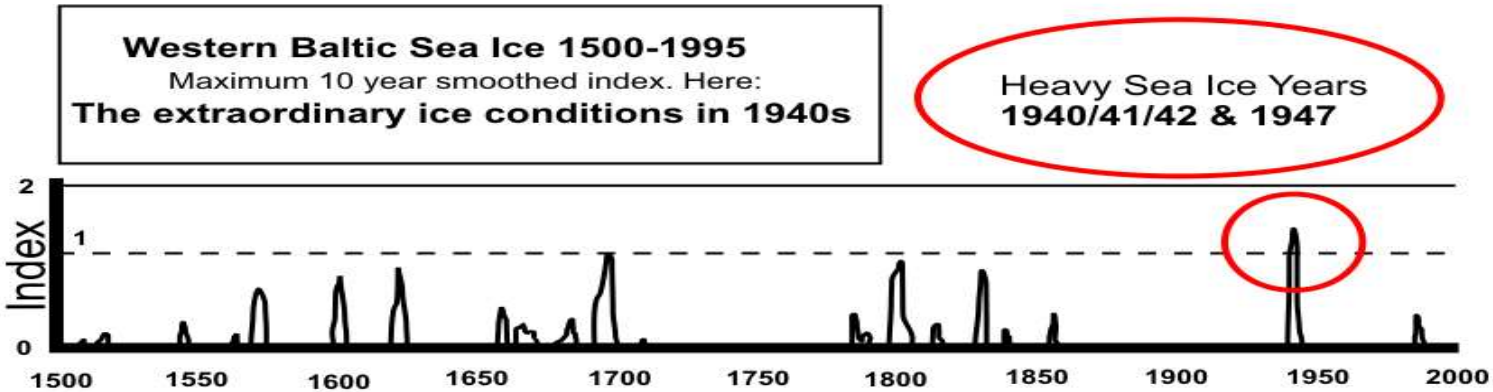


Figure: GISS_NASA; Annual

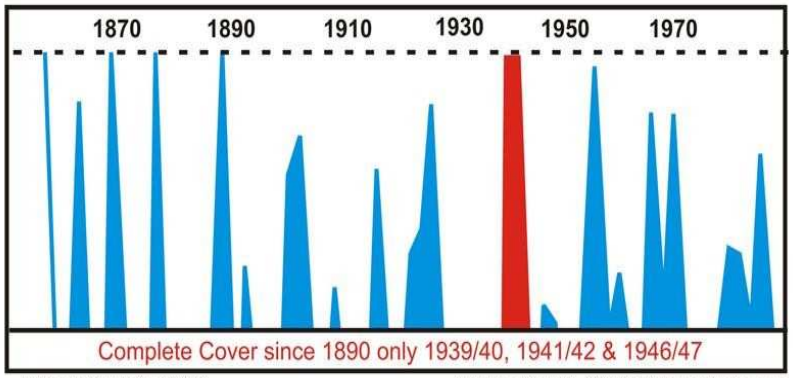


The severe sea ice conditions in the Baltic Sea



The Western Baltic Sea has never seen a sea ice cover as during the 1940s particularly during the first three WWII winters that can be regarded as circumstantial evidence that naval war contributed.
Data info source: Koslowski & Glaser, Cl. Change, 1999/41, p.175. Ab2008

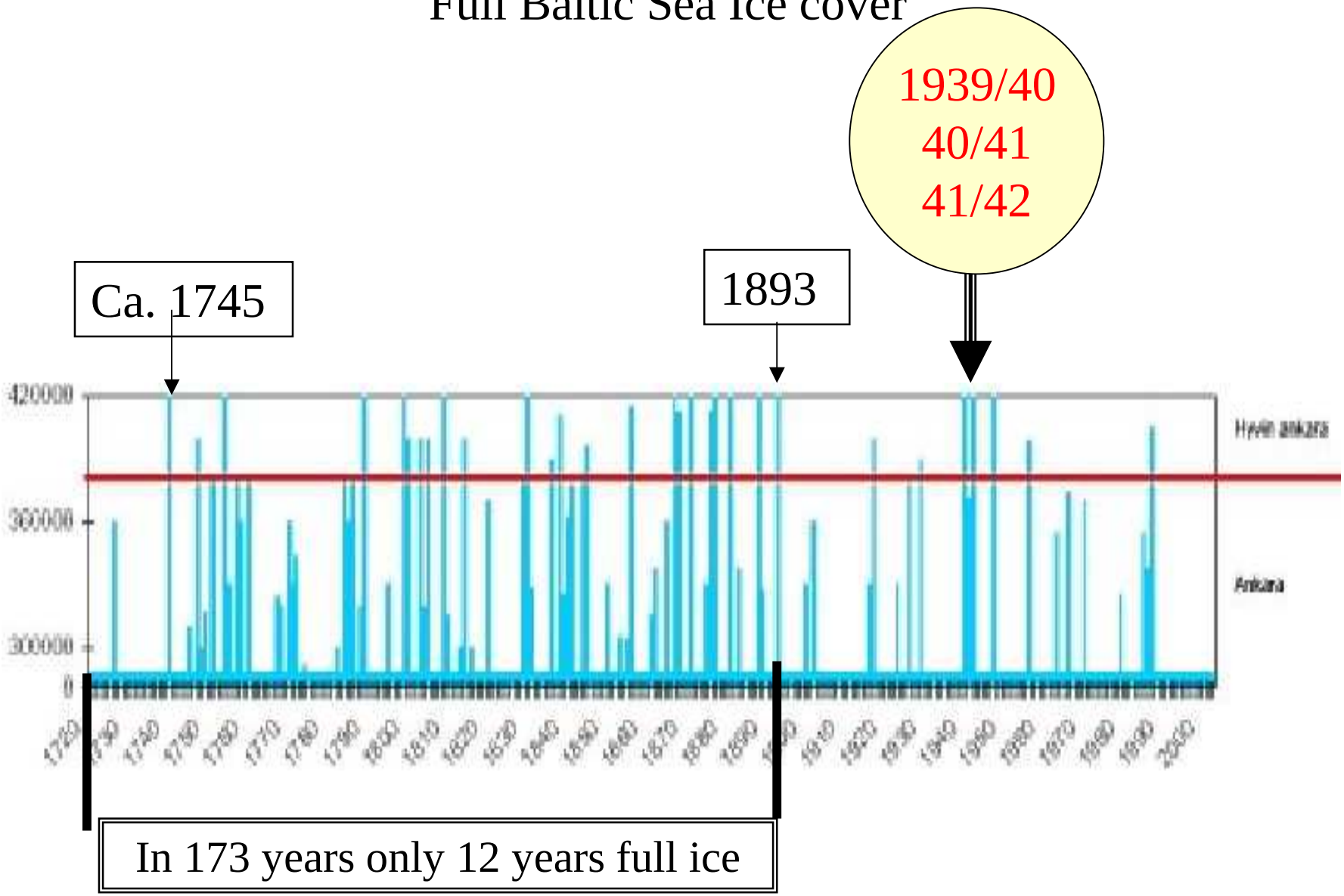
Sea Ice in the Baltic Sea from 1850 to 1990
Between 200'000 and the maximum of 430'000 sq. Km



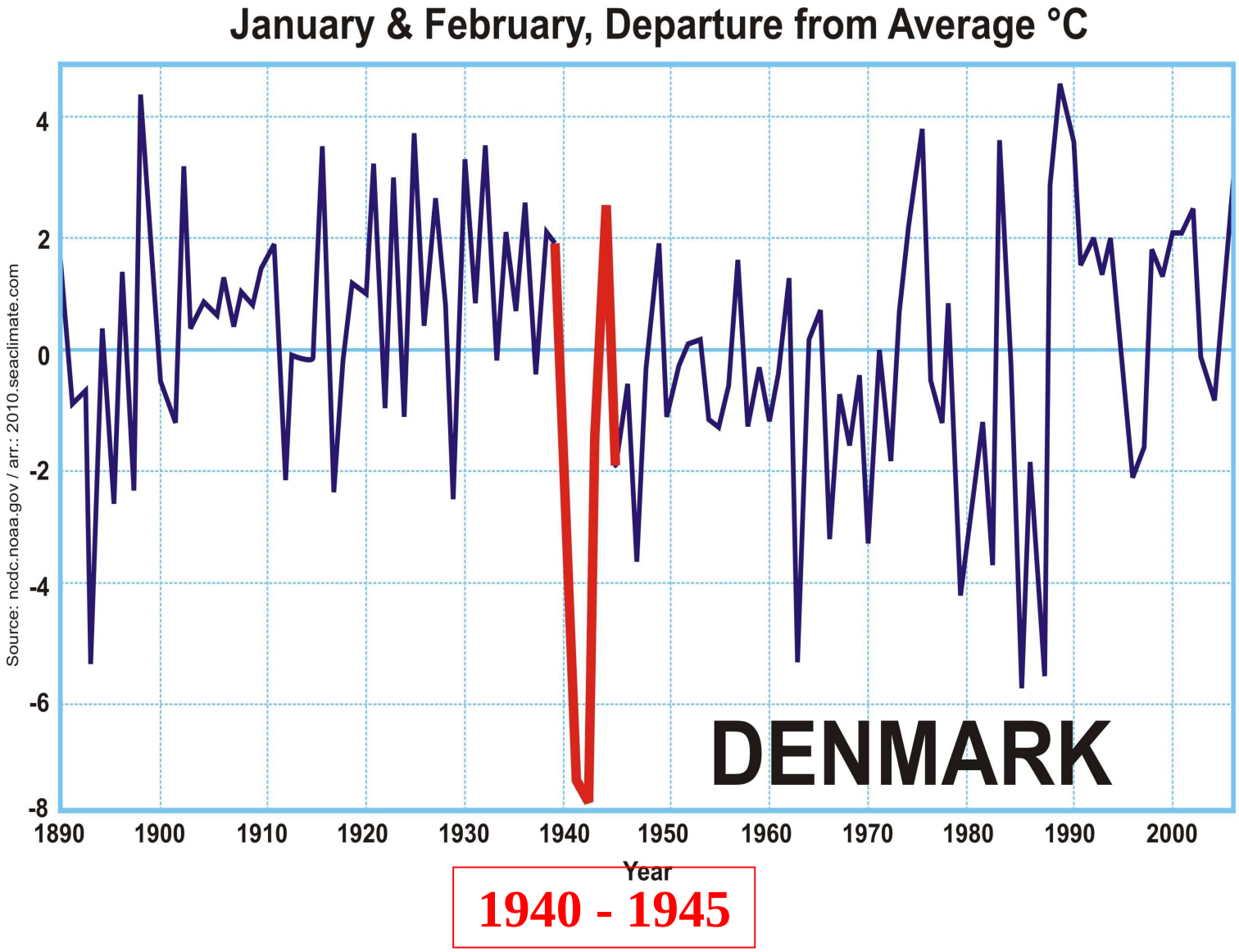
Source: Birger Tinz(1996)

Arranged by app. 2010/www.seaclimate.com

Full Baltic Sea Ice cover



Three cold winters in DENMARK



1940 - 1945

Naval War a large scale experiment with climate?

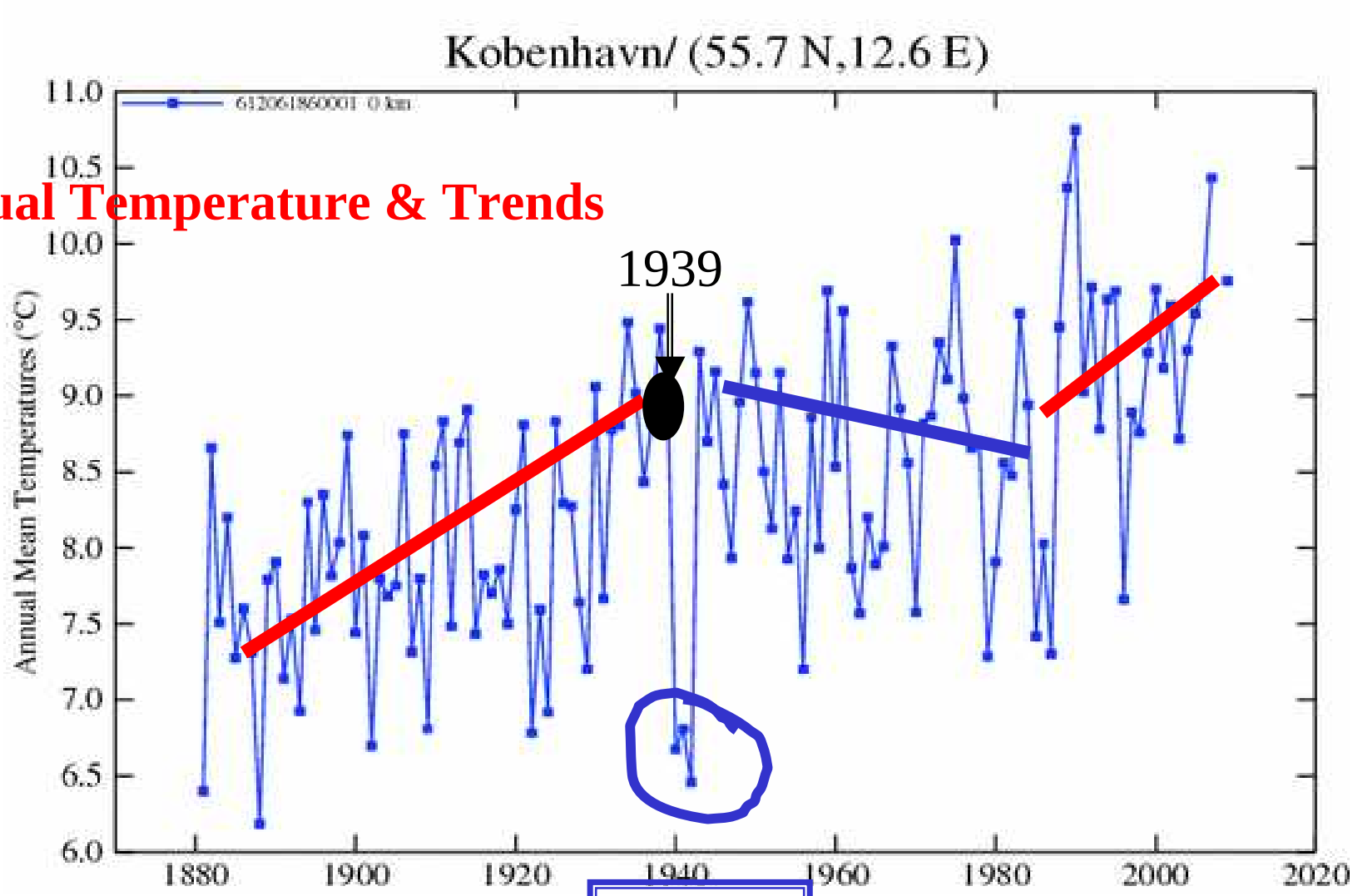
A. J. Drummond from Kew Observatory said 1943*:

The present century has been marked by such a widespread tendency towards mild winters that the 'old-fashioned winters', of which one had heard so much, seemed to have gone for ever. The sudden arrival at the end of 1939 of what was to be the beginning of a series of cold winters was therefore all the more surprising.

***)QJ of Royal Met. Society 1943.**

Particularly significant: War winter 1939/40

Annual Temperature & Trends

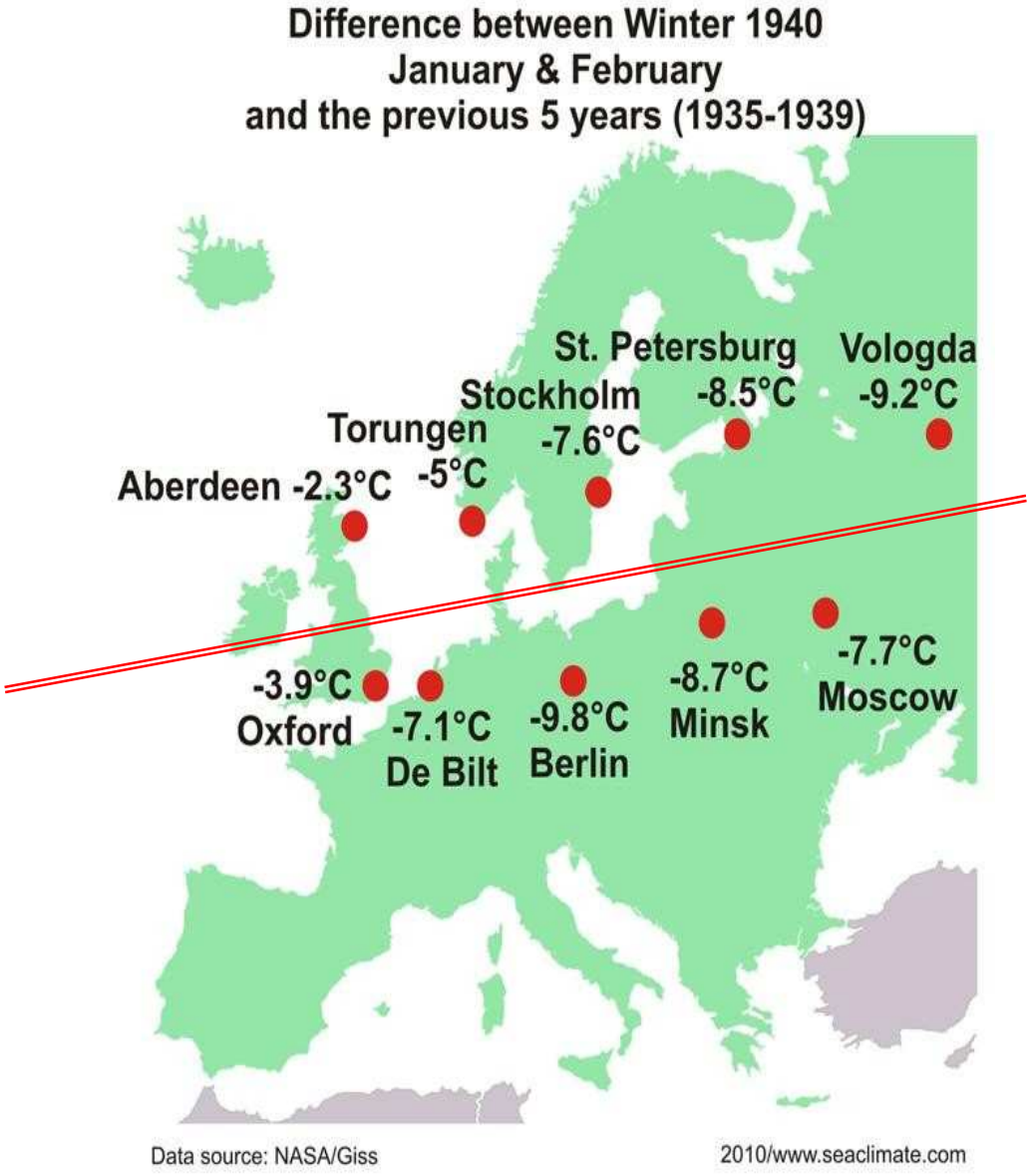


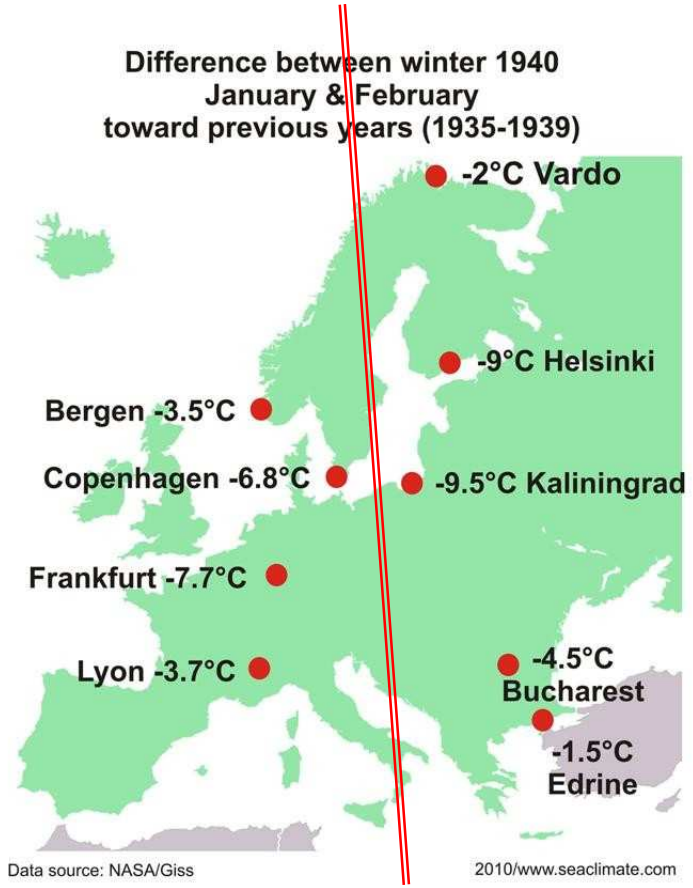
Sea Ice in Danish waters on 13th February 1940



Sea ice appeared already about the middle of December 1939,
which became unusually severe and the duration was extreme
long, maximum 115 days., lasting in the Sound until 19 April 1940.
Data source: Det Danske Meteorologiske Institut (1940). Here: www.seaclimate.com/2008

The cold axis winter 1939/40 (January & February)

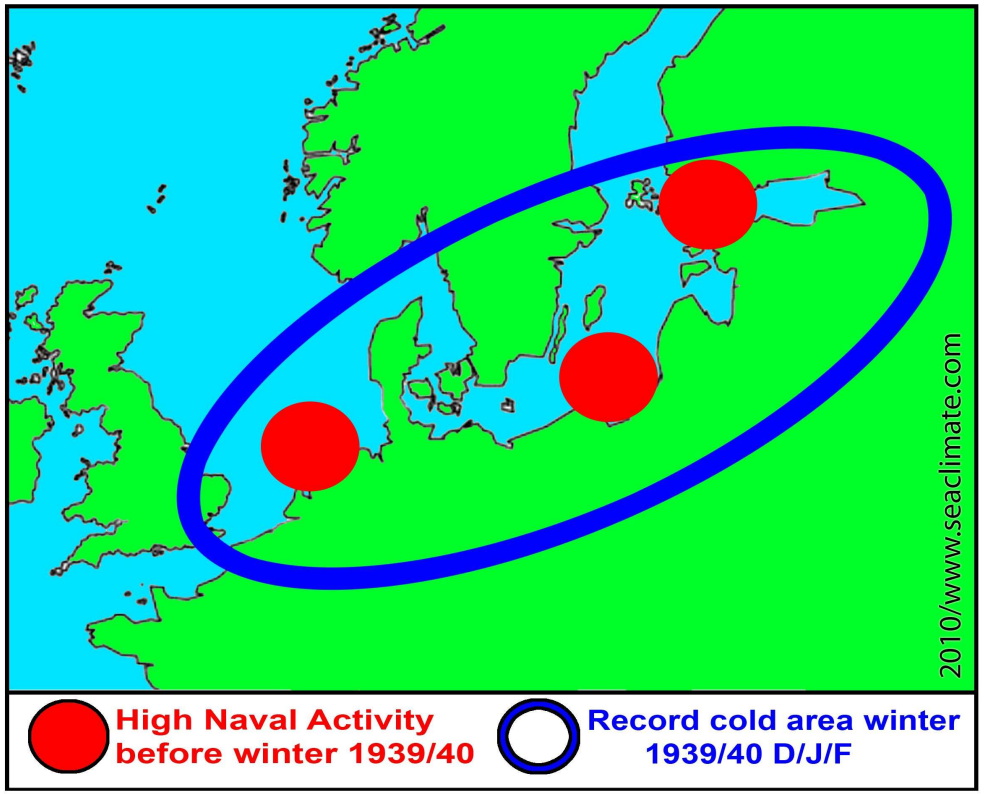




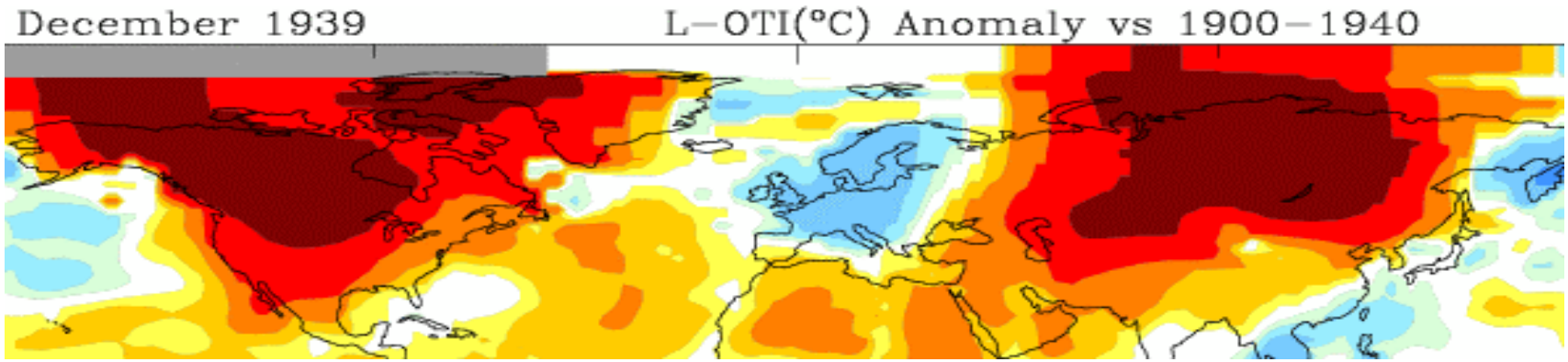


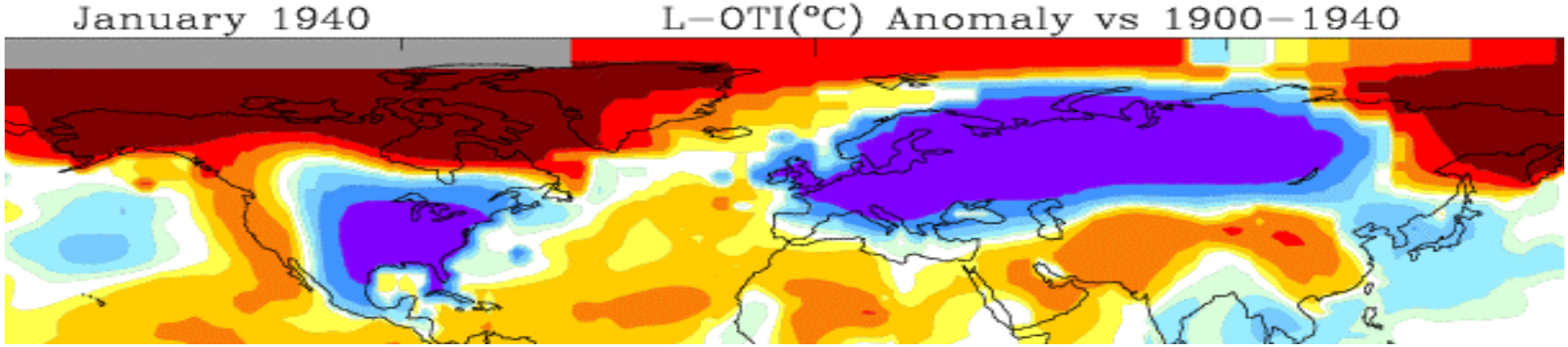
British east coast sea mine barage, Autumn 1939

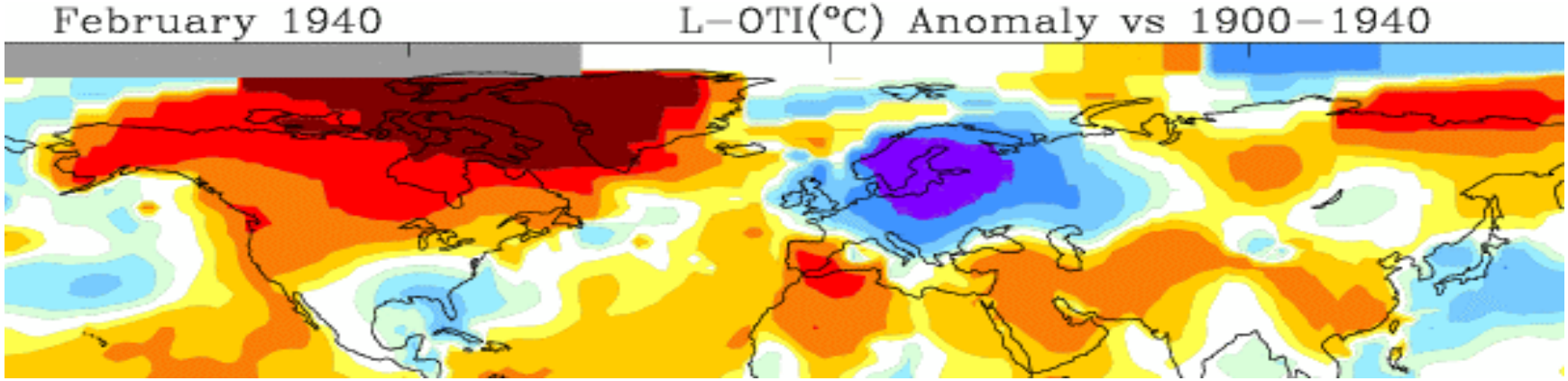
Activity centres first war winter



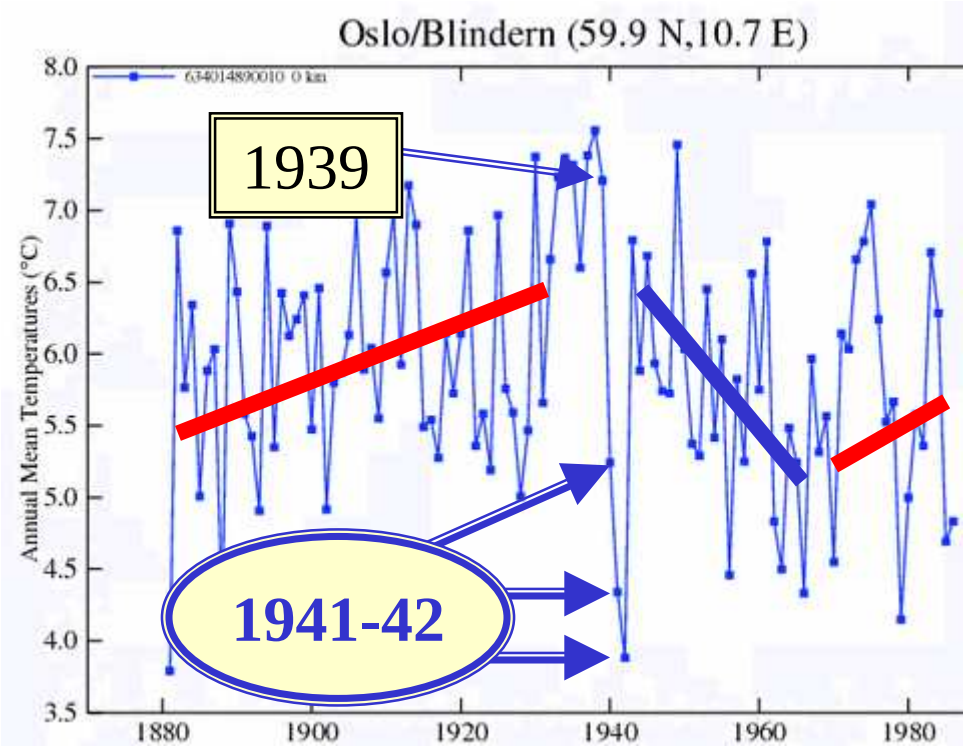
NASA-Giss Winter 1939/40

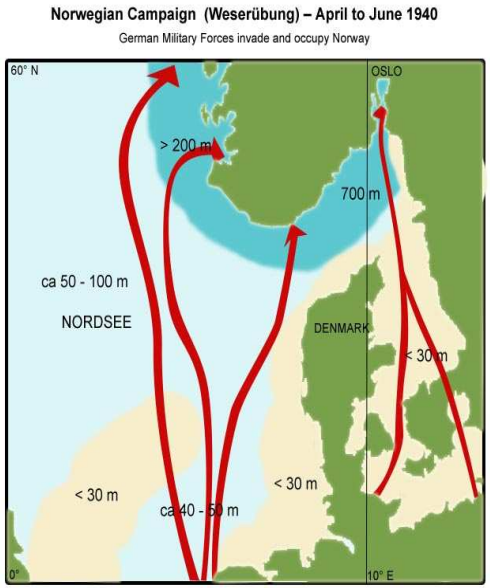


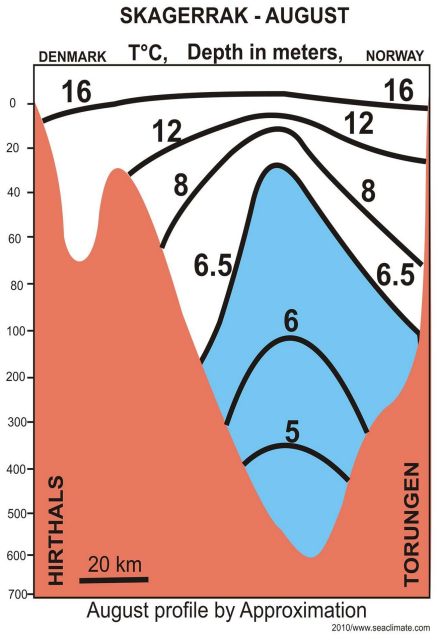


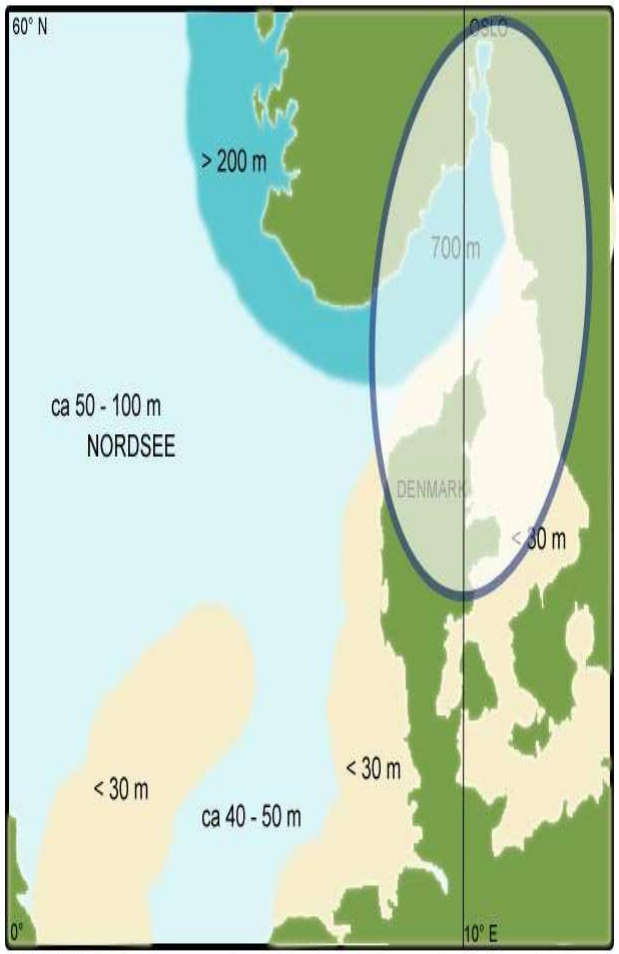


Skagerrak winter 1940/41









The indicated region experienced the lowest temperatures ever observed, presumably due to the dwelling up of huge amounts of very cold water from the depths of the Skagerrak basin to the sea surface by naval activities.

____Germany ambushed the Soviet Union on 22nd June 1941.

____It was the largest military offensive in history; e.g. 4‘5 million Axis men; 3000 tanks, 7000 artillery, 2‘500 air crafts, 600‘000 motor vehicles,

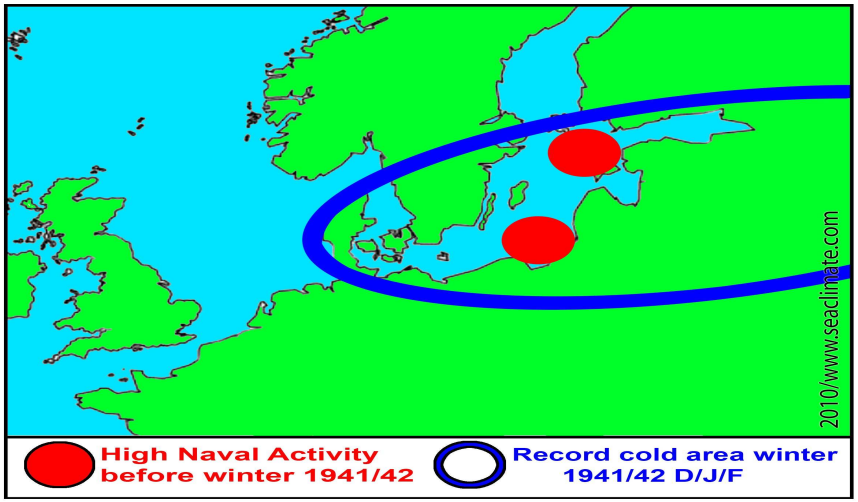
____The Eastern Baltic Sea was battleground between the Russian an German Navy for the next months .

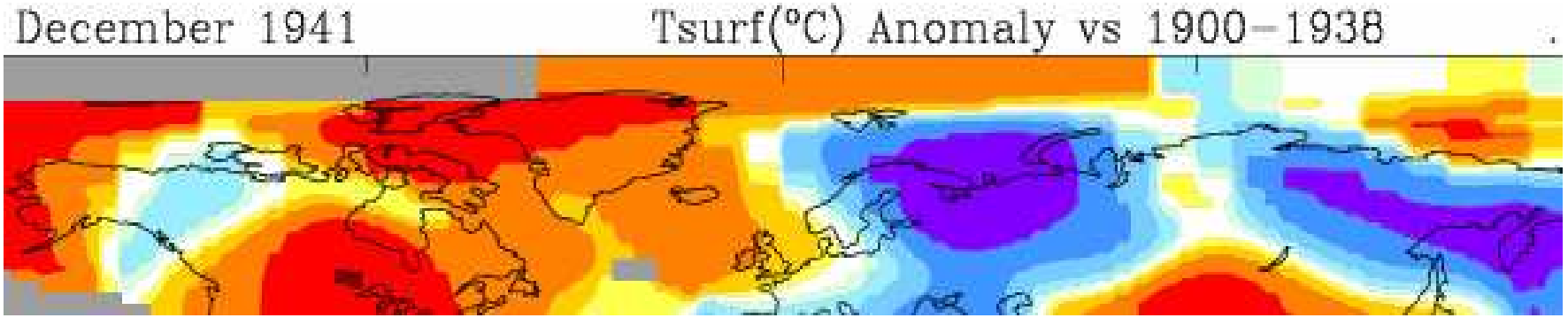
____The winter came in Europe extreme early and severe.

THESIS/QUESTION:

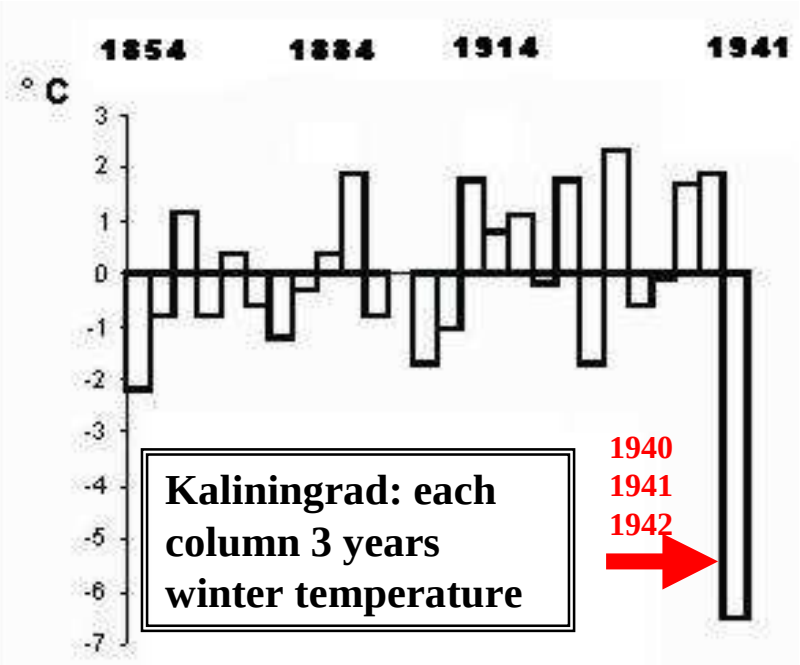
Had the weather conditions less extreme towards the end of 1941 in Eastern Europe if the Baltic Sea had not been made to a naval battle ground?

Winter 1941/42 – German Army fails to reach Moscow due to naval war in the Eastern Baltic Sea?





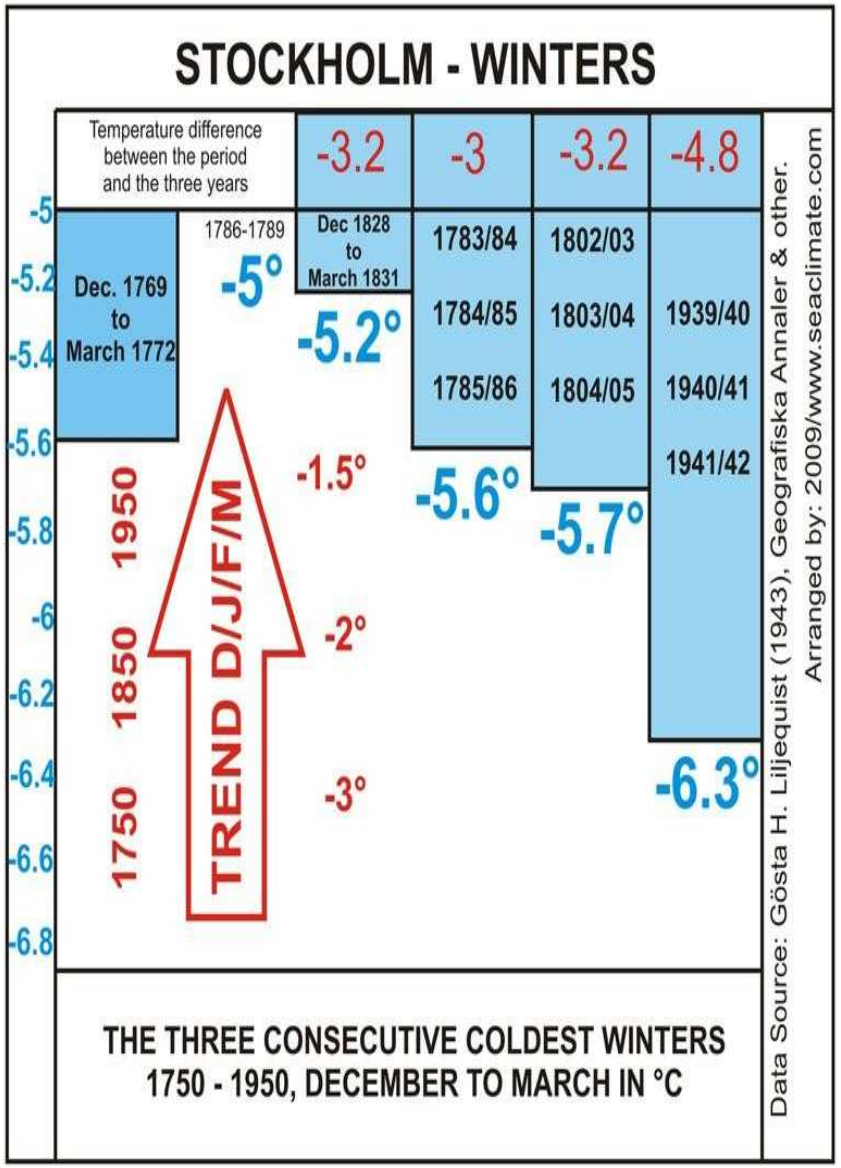
Three Year Package



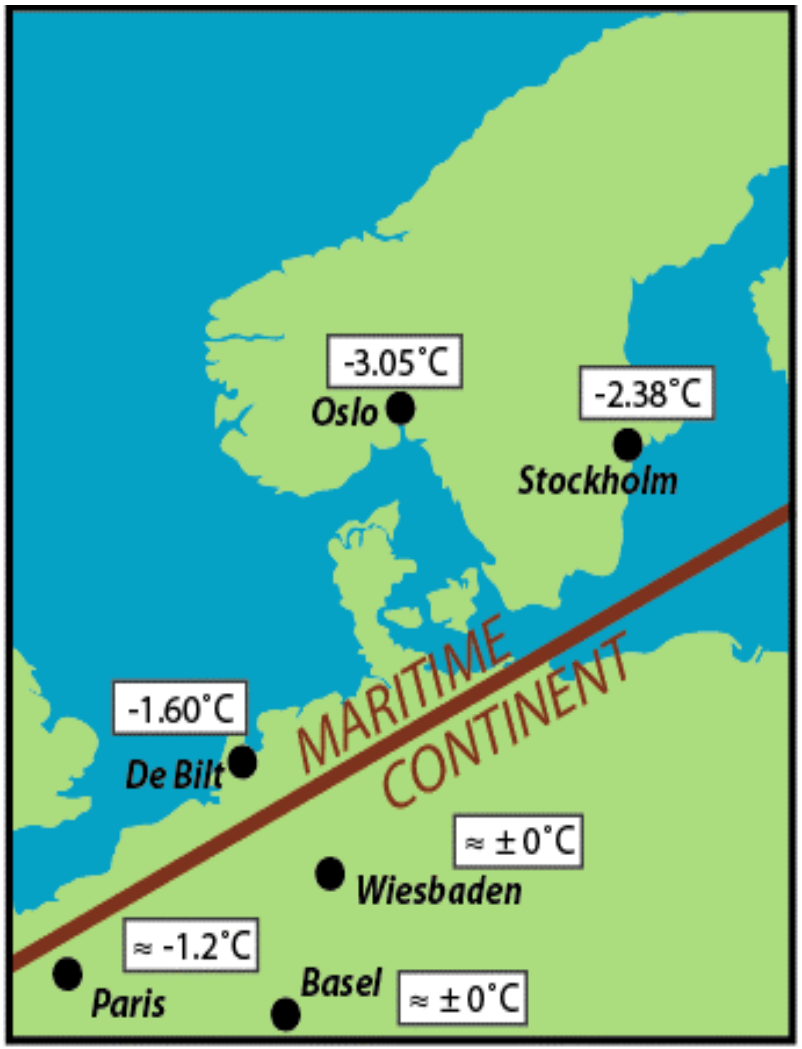
Stockholm

The coldest successive winter years in the period 1757 to 1942			
Mean	1783– 1784 1784– 1785 1785- 1786	1802– 1803 1803– 1804 1804- 1805	1939– 1940 1940– 1941 1941- 1942
- 5,5° C	⇓ ⇓	⇓ ⇓	⇓ ⇓
- 5,6° C			
- 5,7° C			
- 5,8° C			
- 5,9° C			
- 6,0° C			
- 6,1° C			
-6,2° C			
- 6,3° C			

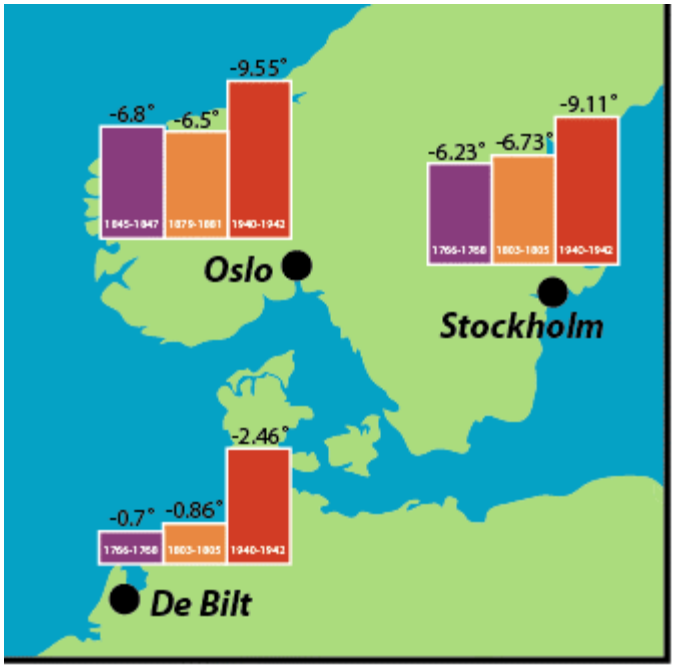
Source: Gösta H. Liljequist



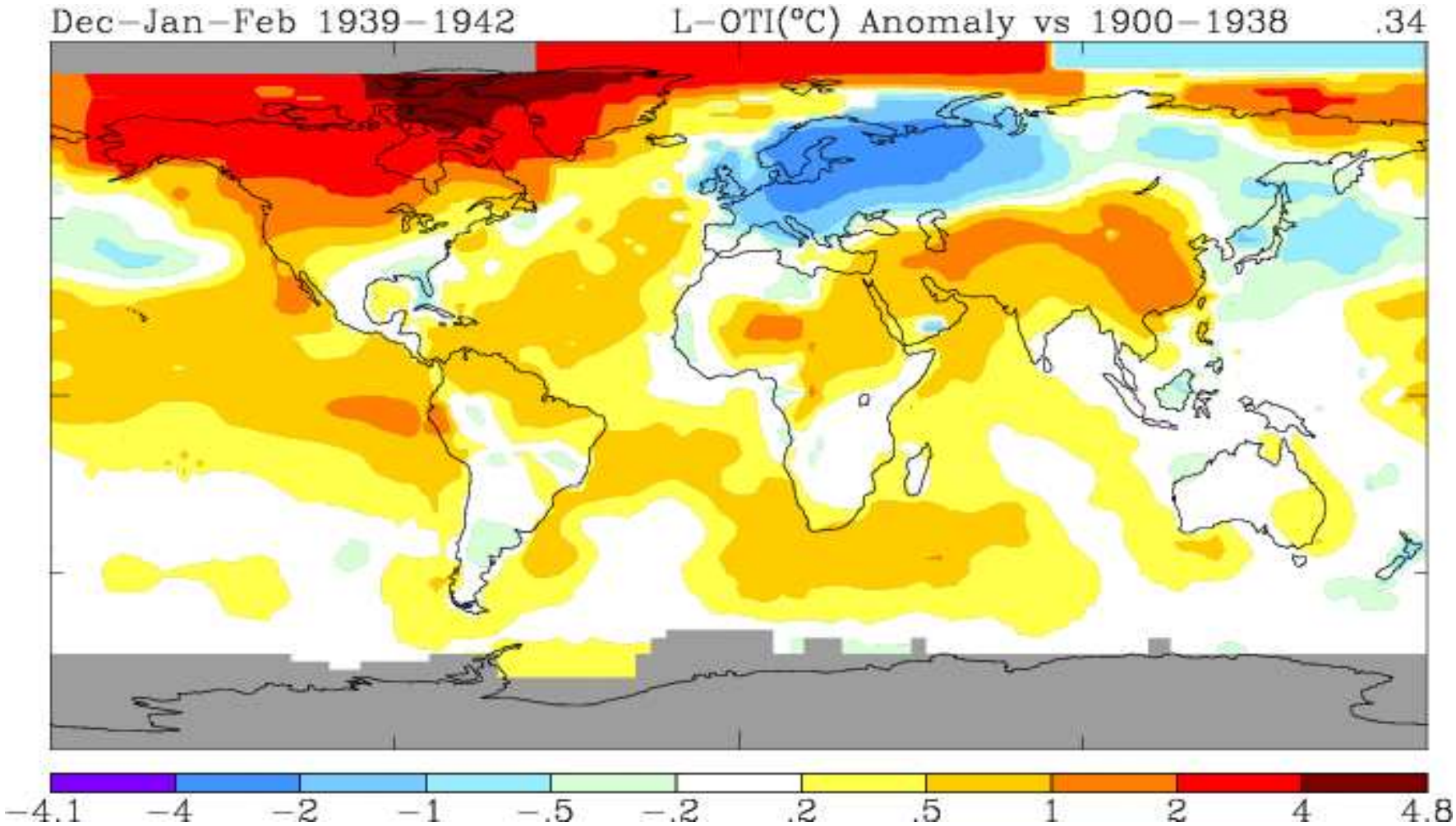
The maritime aspect



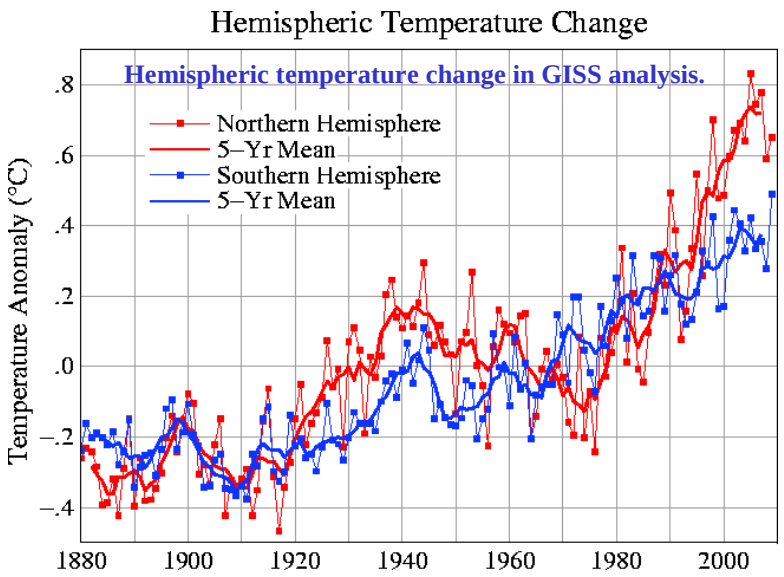
Deviation from three succesive record January & February temperatures during winters 1939/40 - 1941/42

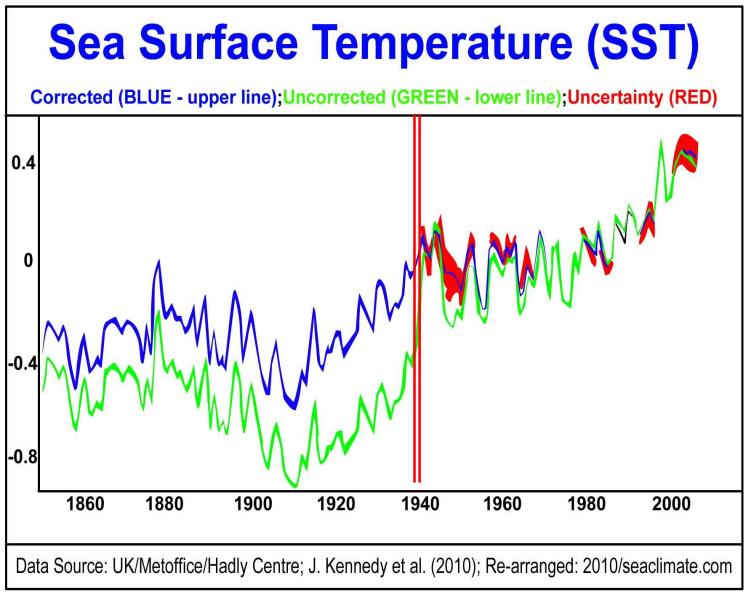


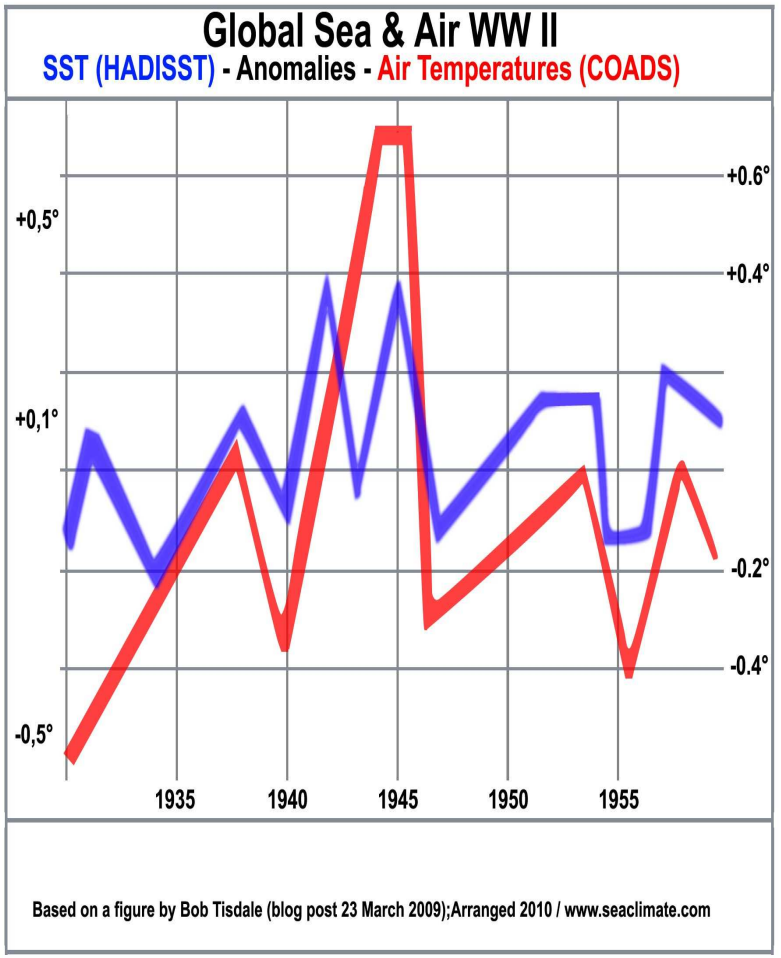
The European aspect during the three war winters 1939-1942 (D/J/F)



Naval war went global since December 1941 until August 1945



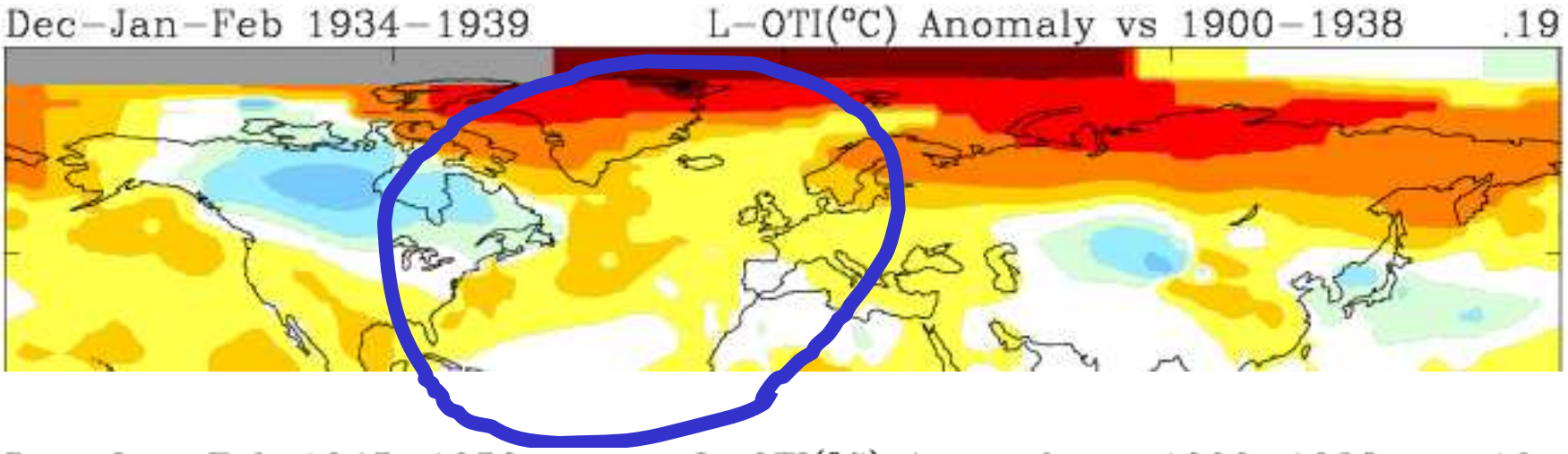


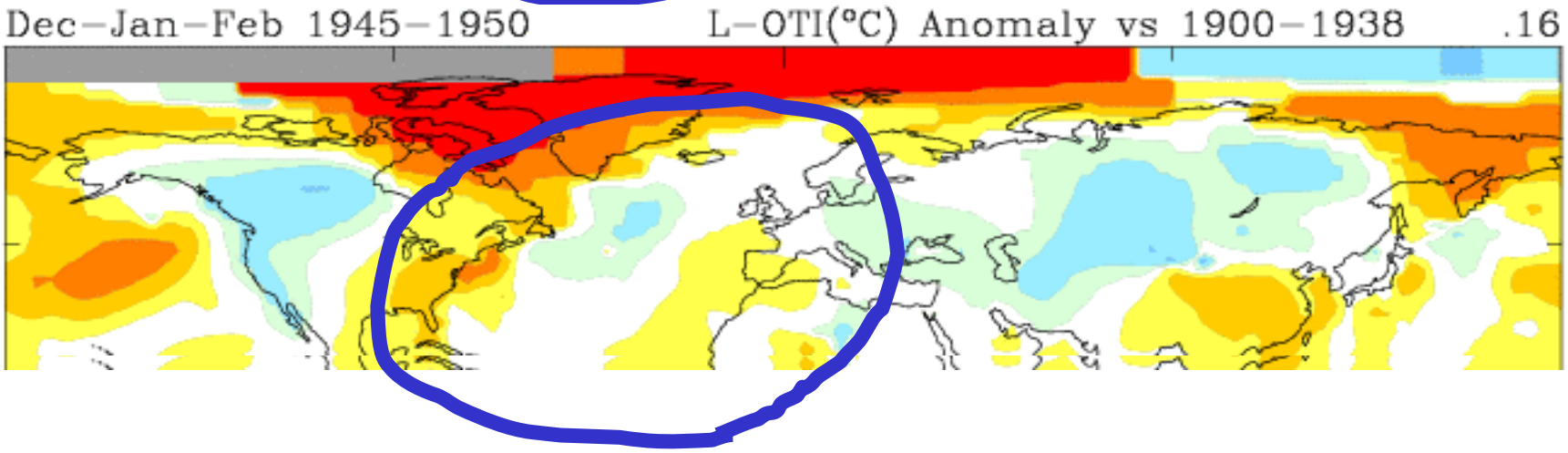


The years before and after WWII.

Was it a „natural“ or „man-made“ climatic shift?

View how the NORTH ATLANTIC changed !





A question asked a long time ago!

One time witness, the German meteorologist M. Rodewald said about the pre-war and war time weather conditions in 1948:

„We noticed this especially in the increasing mildness of the winters which, while beginning in the previous century, became more and more striking between 1900 and 1939. So it is all the more surprising that there was a series of three severe winters in succession in 1939/40, 1940/41 and 1941/42, appearing to indicate a sudden reversal of the previous development rather than a slow deceleration, contrary to the sustainment tendency of circulation and temperature deviation."

It seems time to give an answer!

Conclusion

Anyone who claims to understand climate change must also be able to explain the events, which occurred during World War II from 1939 to 1945, namely:

___the three extreme cold winters in Europe between September 1939 and March 1942; and

___the start of a global cooling period since 1940 to the mid 1970s.

Anyone who can explain these events will recognise

___that the oceans play the key role in any and all questions concerning atmospheric behaviour (weather & climate), and

___understand better how human activities in the marine environment influences the impact of the oceans on weather and climate.