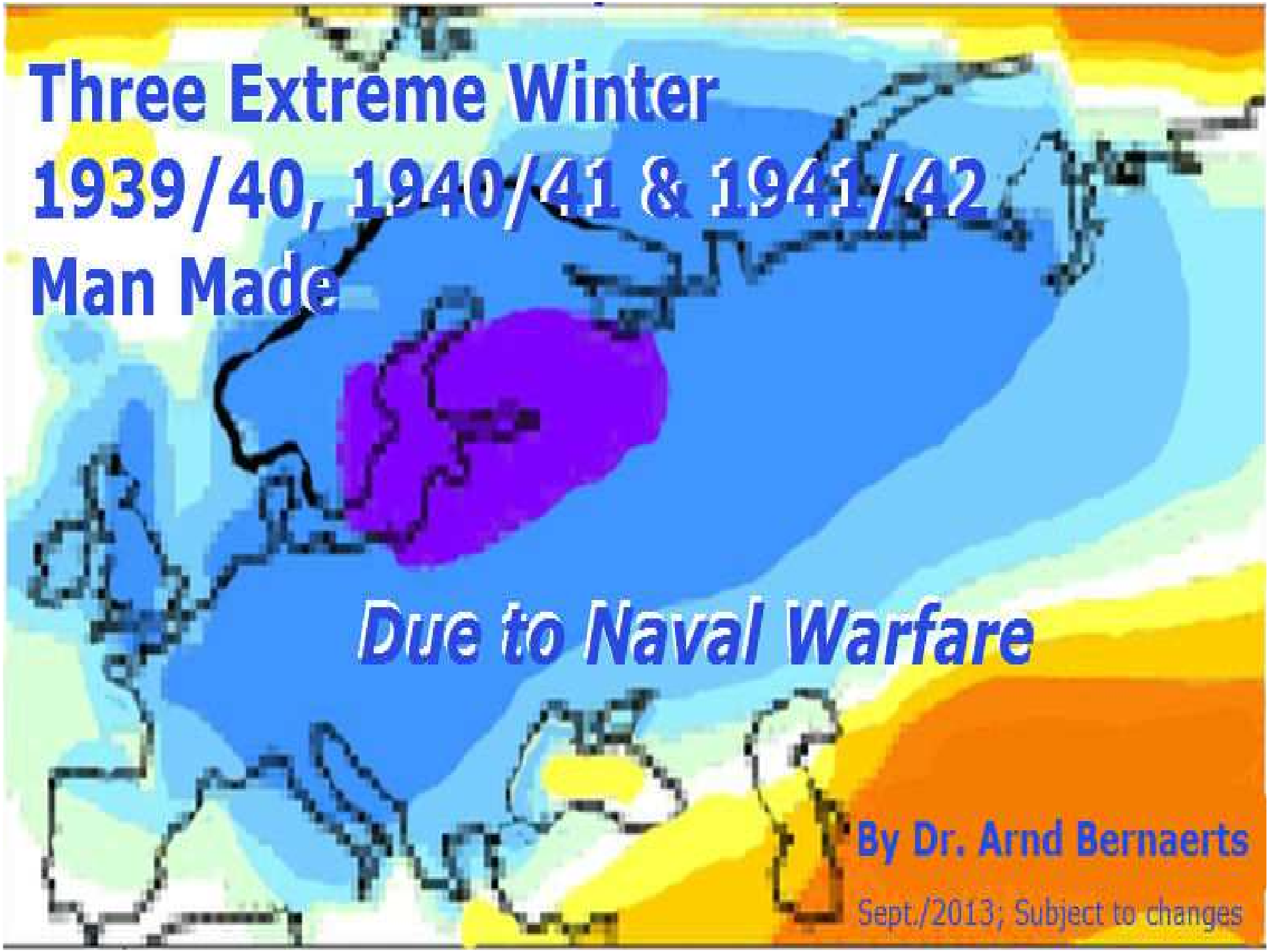
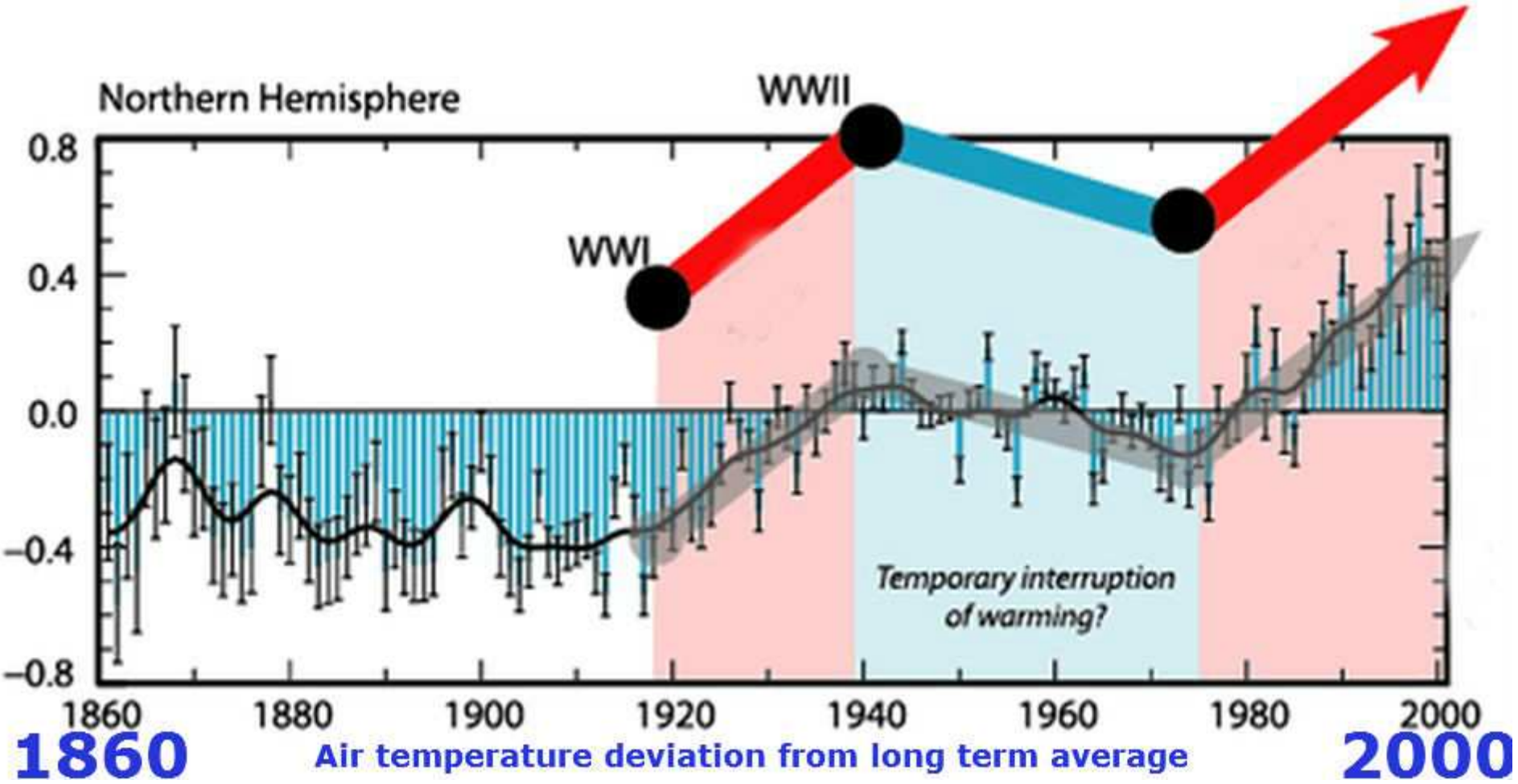
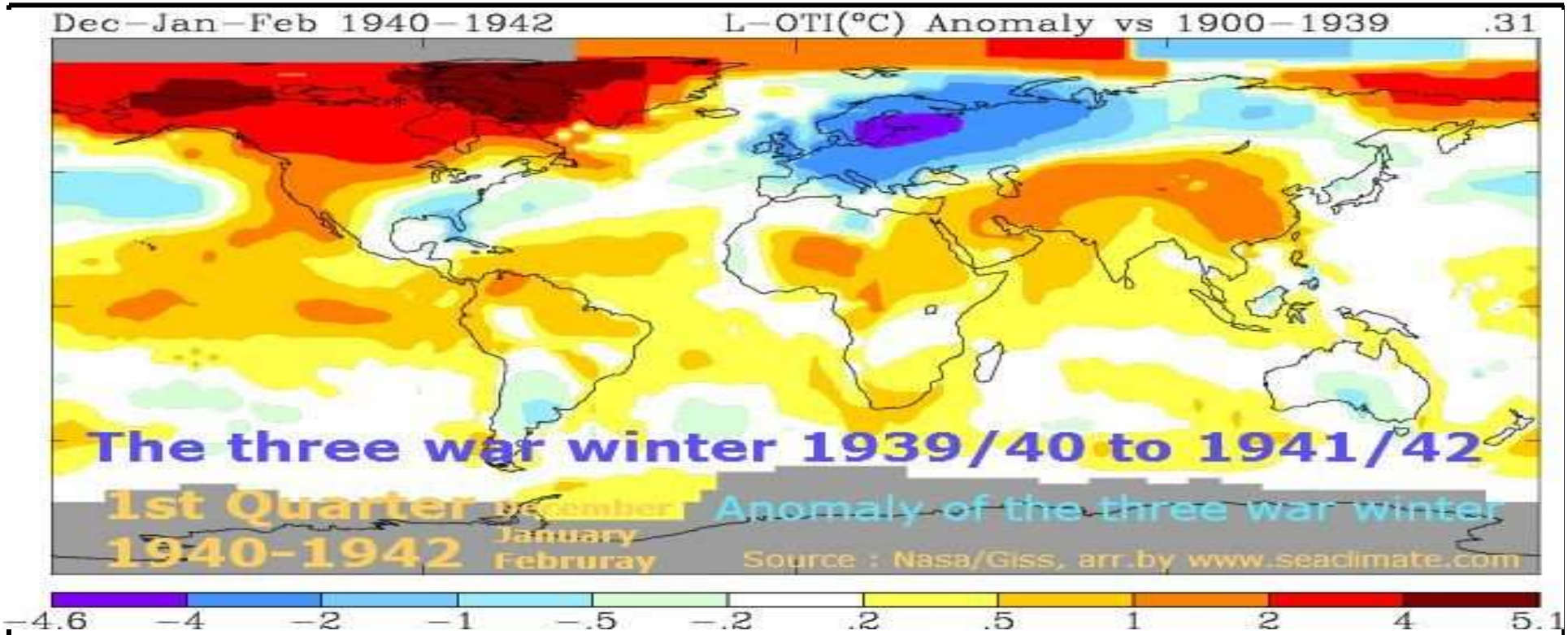

Three Extreme Winter
1939/40, 1940/41 & 1941/42
Man Made
Due to Naval Warfare
By Dr. Arnd Bernaerts
Sept./2013; Subject to changes

Two climatic shifts during the 20th century due to naval warfare?



Focusing on the first 3 winters in Europe during World War II.



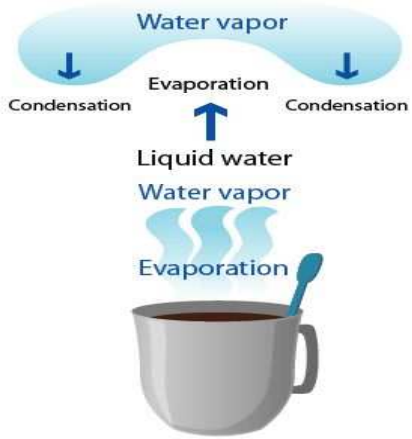
- Between 1920 and 1939 the world had been getting warmer.
- **The trend continued when WWII commenced, but stopped sharply in Europe after few months at war in winter 1939/44**

How can proof be provided that naval warfare contributed to the extreme winter in 1939/40, 1940/41 and 1941/42.

- Northern European air winter temperatures depend strongly on heat reserves of the North Sea and Baltic.
- **Exessive activities release heat more quickly, allowing cold Arctic air to drop in.**

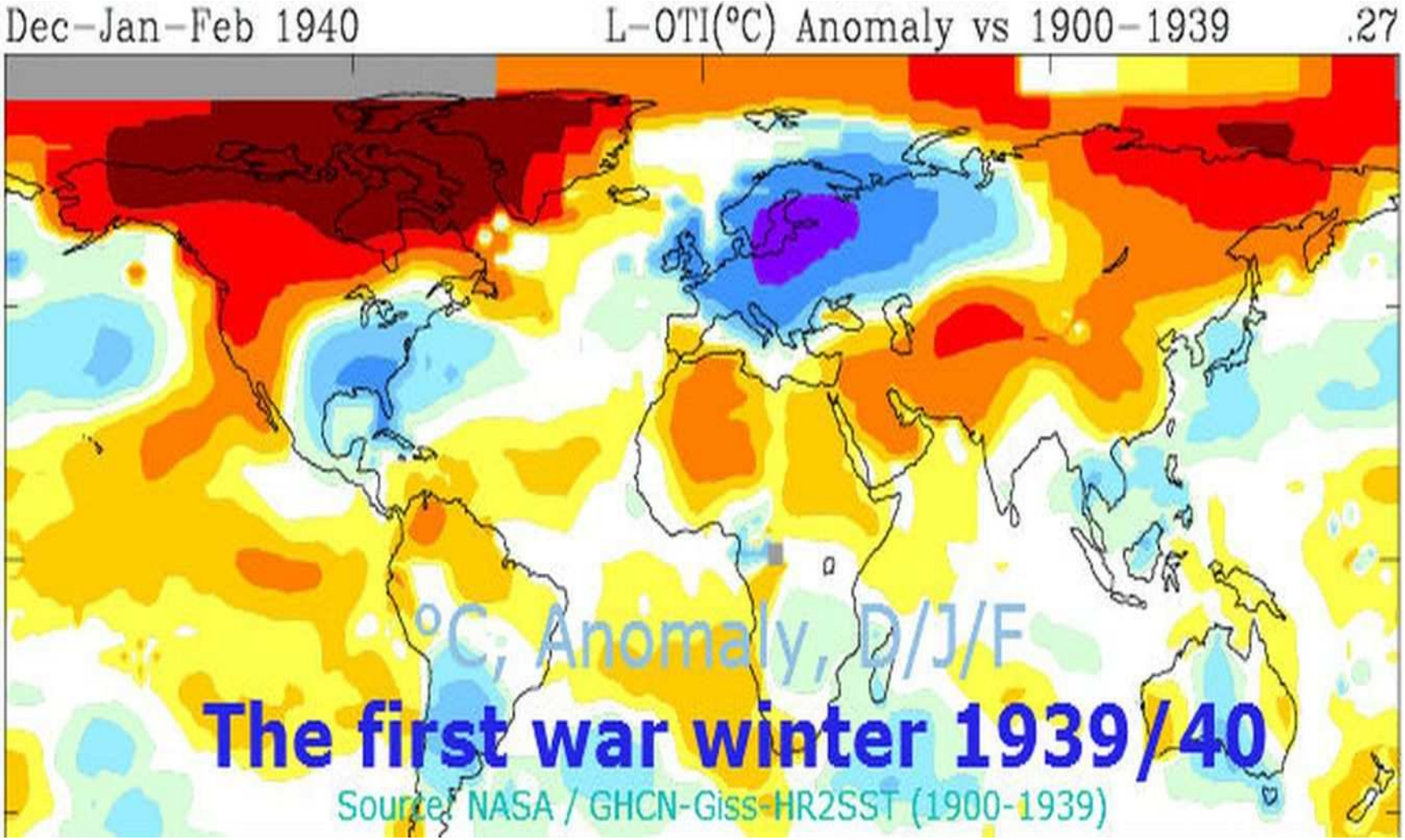
As data about water temperatures are rare, conclusions must be drawn from:

- **Air temperatures**
- **Ice forming, extent and duriation**
- **Regional high naval activities.**

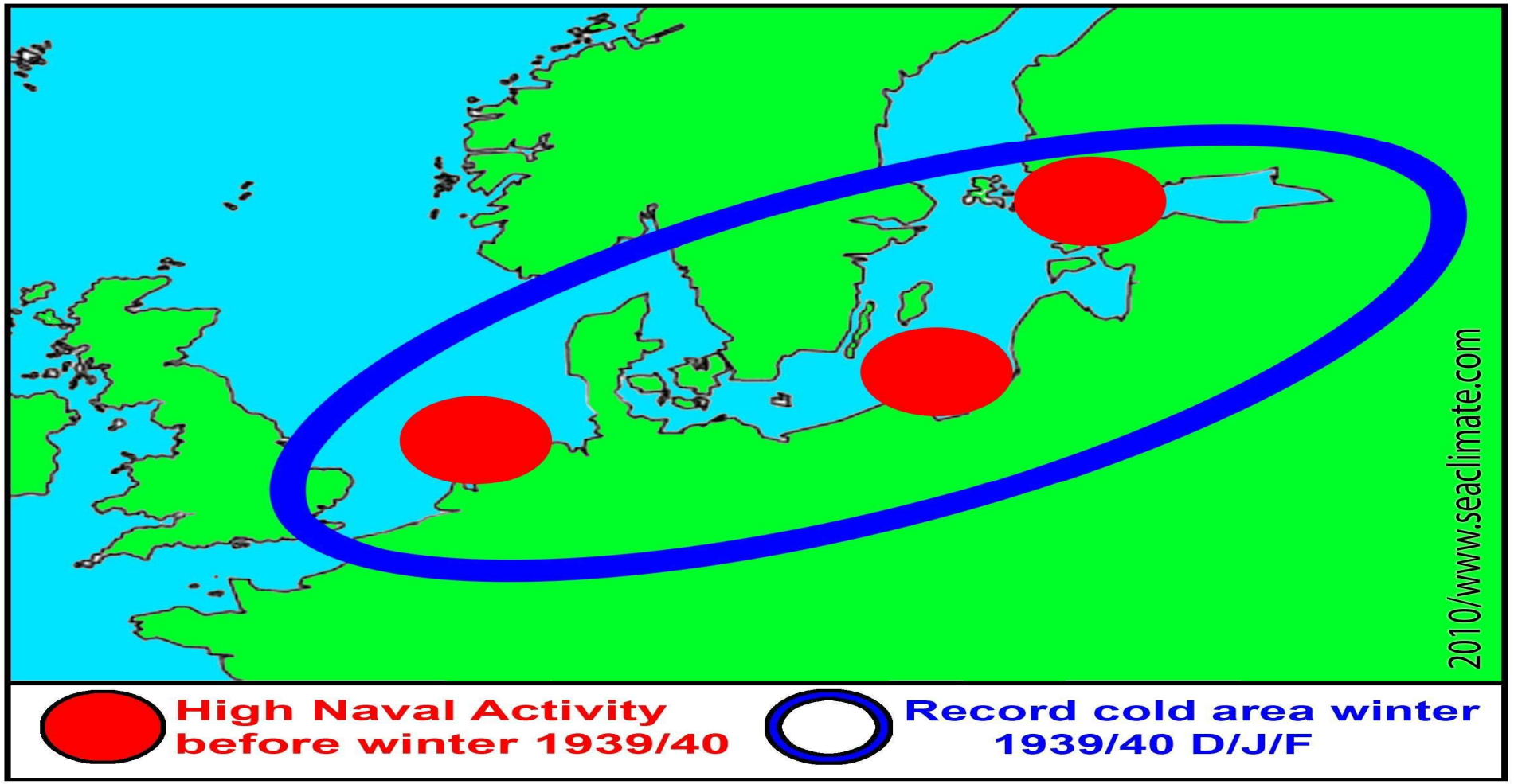


Concept of presentation:
(1) Each of the three winters individually.
(2) Three winters in succession are statistically rare, which might be a unique occurence for many hundert years.

Global temperatures are well above average. There is only a decline in the Baltic region due to arctic cold air.



During the first few months several hundred-thousand explosives penetrated deep into the marine environment.



Berlin-Germany

Tempel, Berlin 52.5 N 13.4 E, °C

Winter Temperatures, 1880 – 2009

December/January/February

Source: GISTEMP – Monthly data as text

At: http://data.giss.nasa.gov

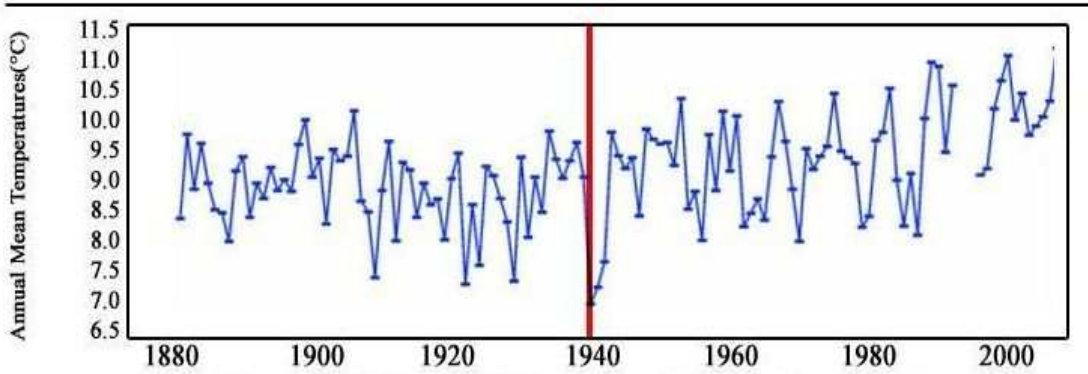
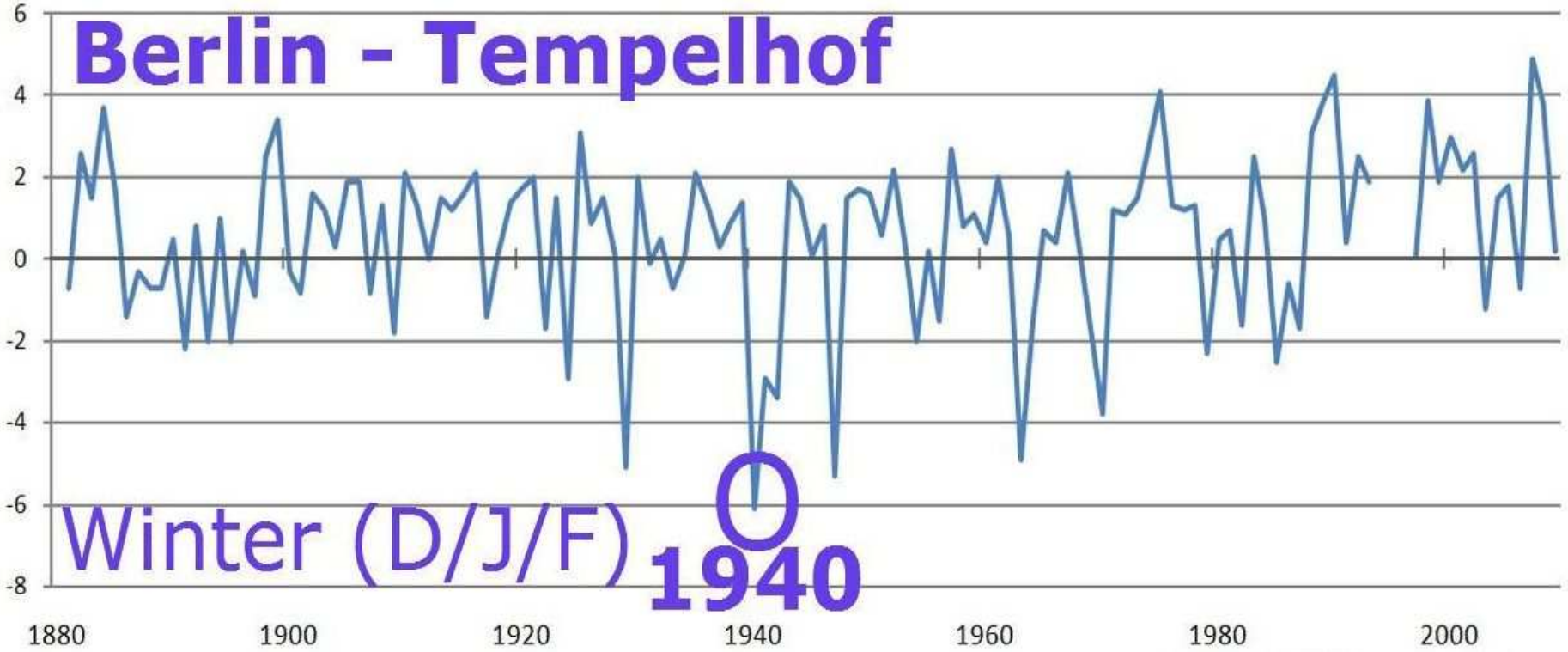
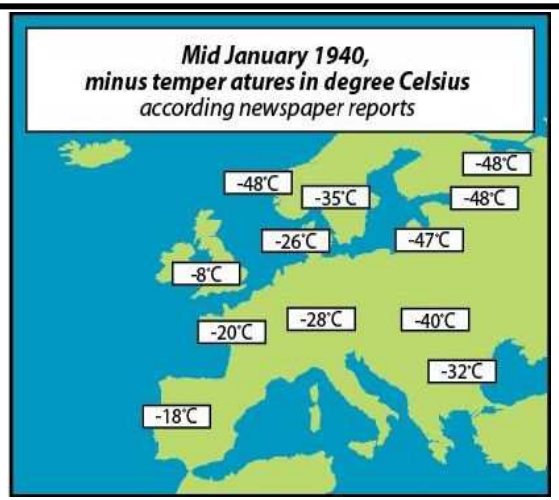


Figure: GISS_NASA; Annual Mean Temperatures;

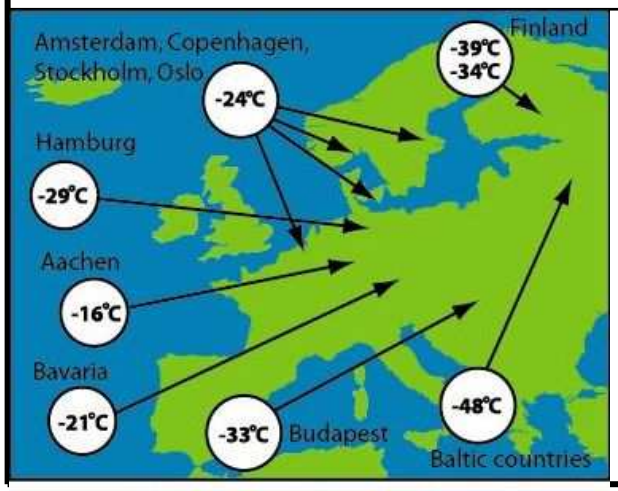


Several all time cold records



Polen -41°C
(at Siedlce on 11. Jan.)

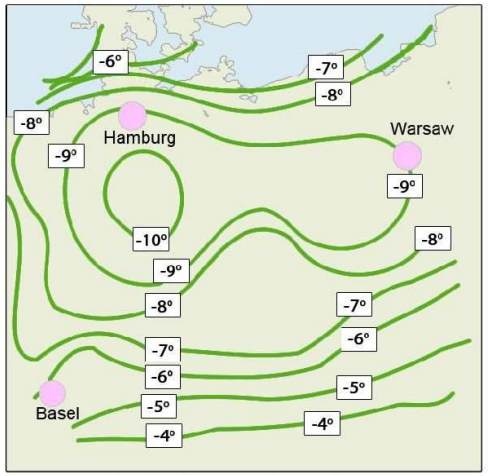
Estonia -43,5°C (17. Jan.)
Minsk -40°C (17. Jan.)
Moscow −42.2 °C (Jan.)
Wales/UK –23,3°C (at



Reported temperature, February 14th - 17th 1940

Hamburg -27°C,
(13. Feb.)

Hungary -35°,
(16. Feb.)

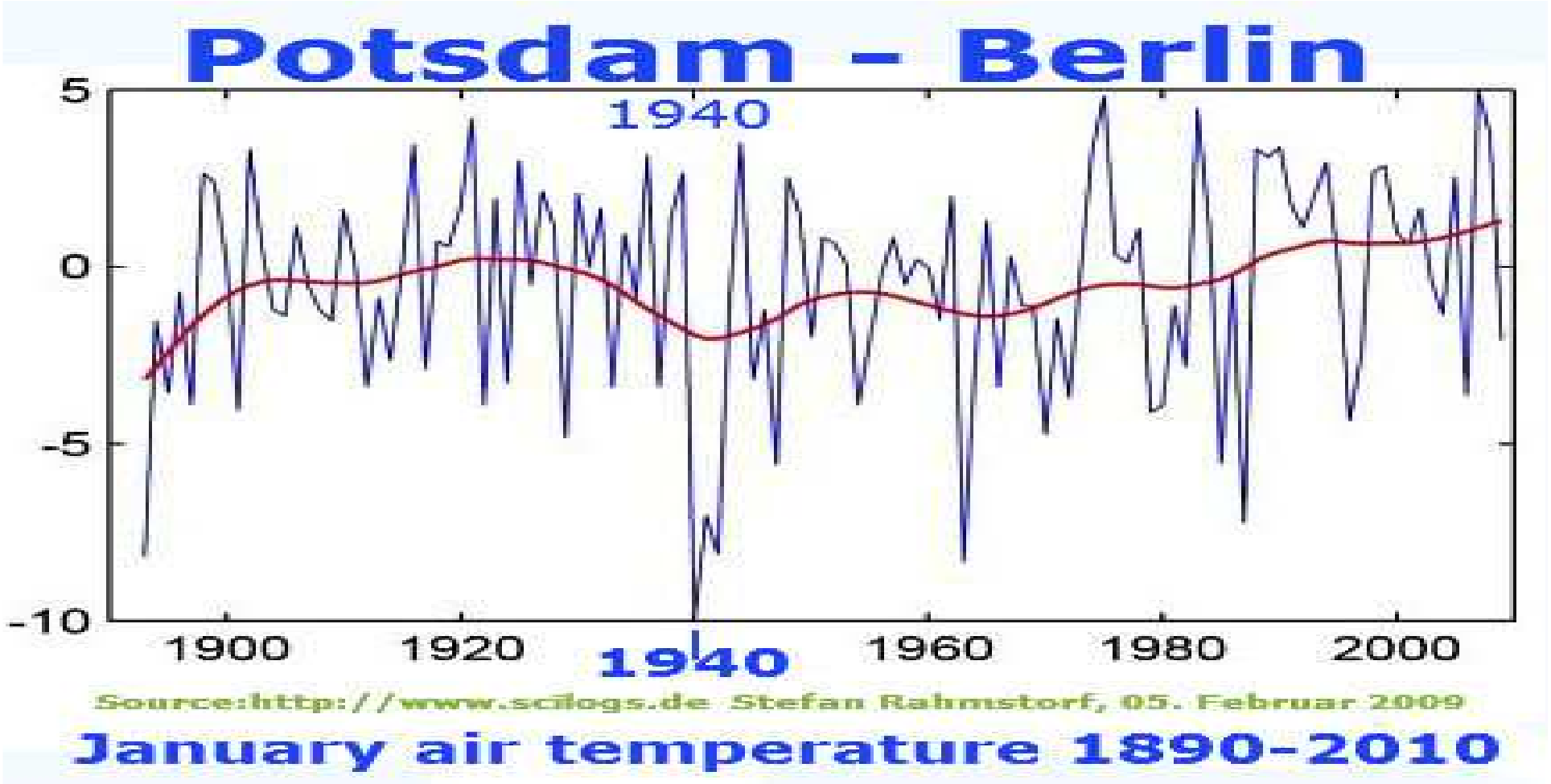


Departure from mean temperature

Source: R. Geiger (1948)

2008 / www.ozeanklima.de

How can science ignore such a situation having seven decades of time to come up with an explanation!



The intrusion of cold came from the North Sea with sea ice forming in the German Bight after 16. December 1939, lasting for more than 100 days!

Sensational early! Sensational lasting!

- A large part of the Kriegsmarine operated from Helgoland.
- A huge mine field was layed from Holland up to the Skagerrak
- Britain attacked by own mines, ships, bomber and fighter planes

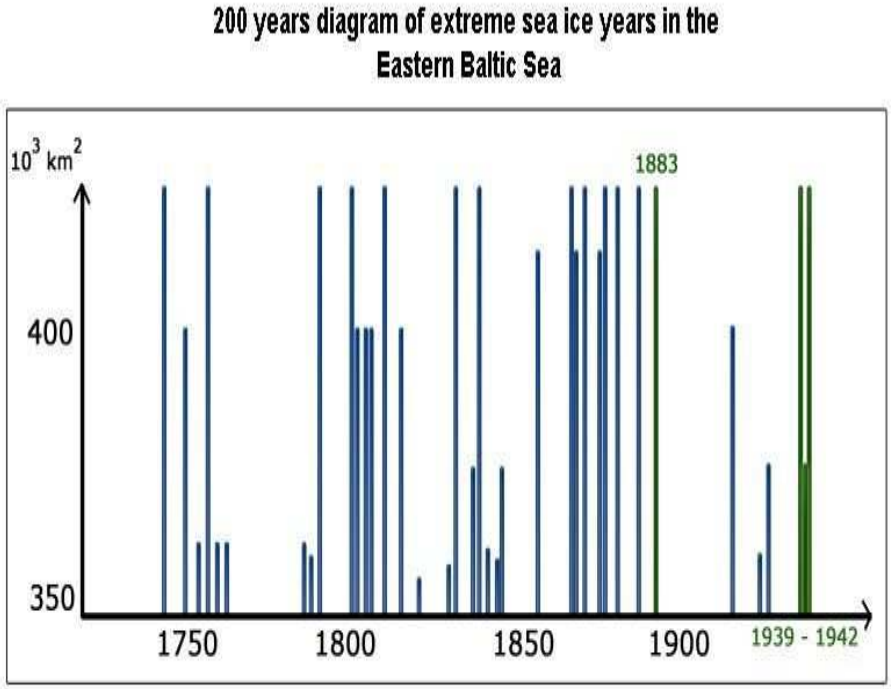
Helgoland
German Bight
Sea surface T°C deviation

	September	October	November	December
1930/38	+ 0,86	+ 0,54	+ 0,56	+ 0,47
1938	+ 1,0	+ 0,6	+ 1,7	+ 0,6
1939	+ 2,6	- 0,6	- 0,4	- 0,3

Sea surface temperature anomaly vs. 1901 -1930
Based on data from Erich Goedecke, 1954

The icing in the North Sea commenced about 2-3 weeks earlier as at the German Baltic Sea coast.

The heaviest sea ice in the Baltic since 1883!



Before 1850 the Little Ice Age reign, over 200 years observation the maximum ice established until 1883 only ca. a dozen times, followed by six decades with modest condition, and suddenly when WWII commenced the most severe ice cover over a three years period ever observed established. Why? Only naval activities can have done it! Or what else?

Data info source: Finnish Marine Research, No.254, 1988

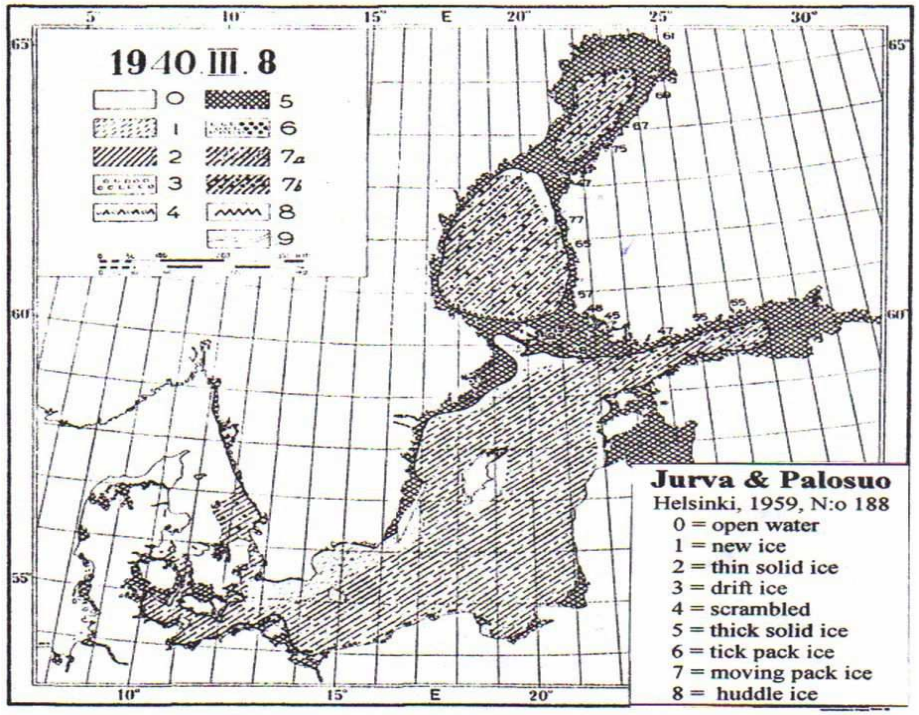
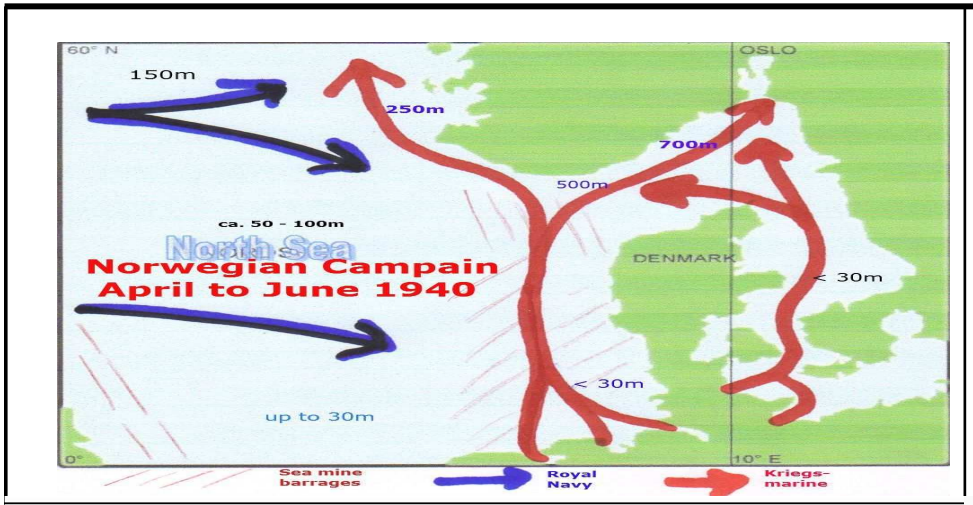


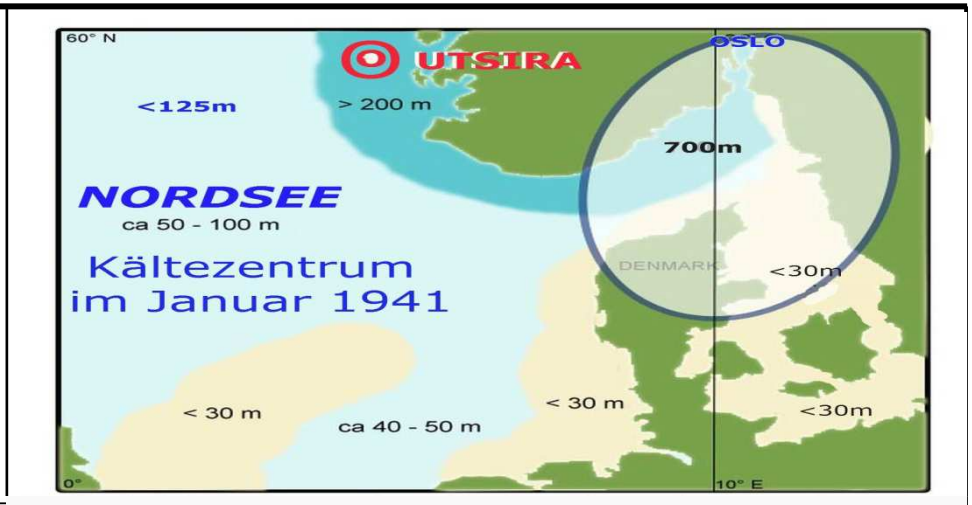
Abb. 17. Die Eislage am 8 März 1940

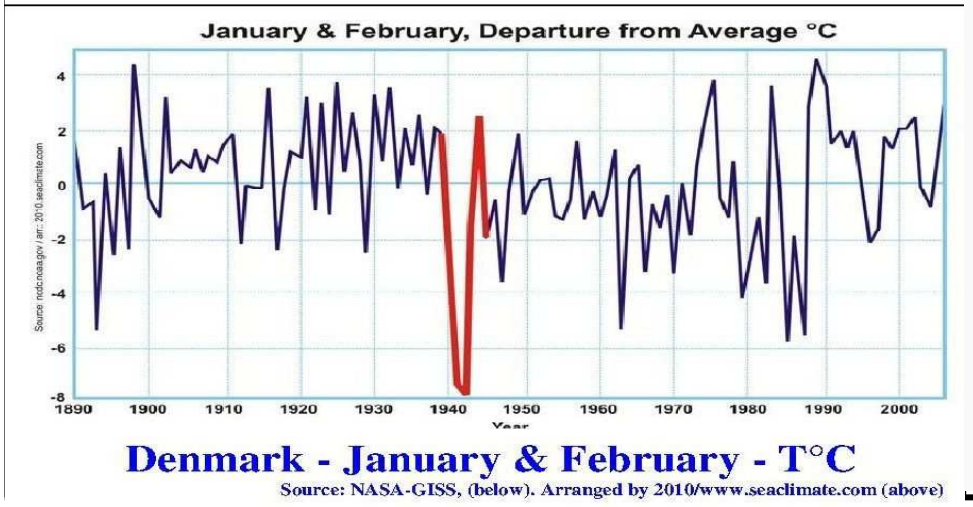
Erläuterungen: 0 = offenes Wasser, 1 = neues Eis, 2 = dünnes Festeis, 3 = Treibeis, 4 = zusammengedrängter Eisbrei, 5 = dickes Festeis, 6 = dichtes Packeis, 7 = bewegliches Meereseis, 7b = zusammengefrorenes Meereseis, 8 = Zusammendrängungen, 9 = Eisrinne in Richtung der Küste

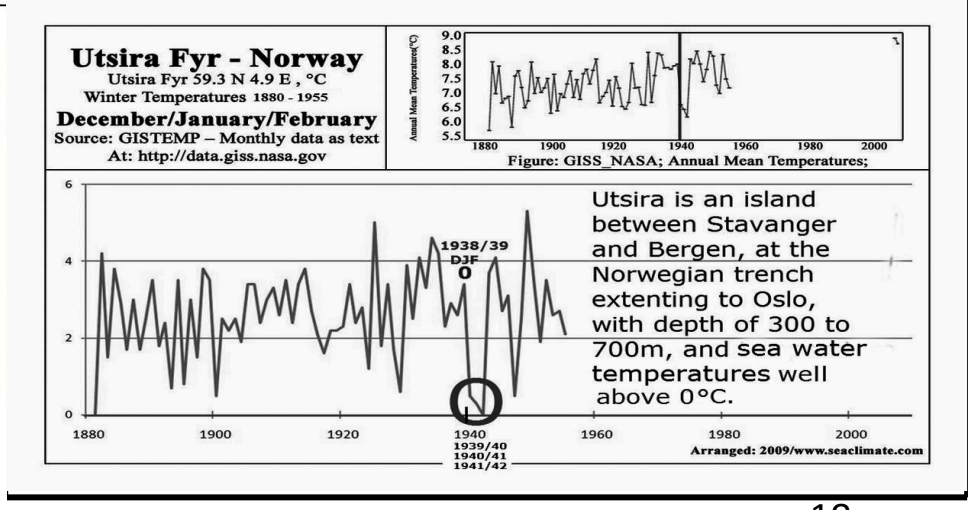
It seems time to ask why so suddenly and severe!

Winter 1940/41 brings record cold to the Skagerrak









Winter 1941/42

After two extrem winters it should have been possible to understand that fighting a fierce naval battle in the Eastern Baltic for six months would inevitably generate the third extreme winter in a row!

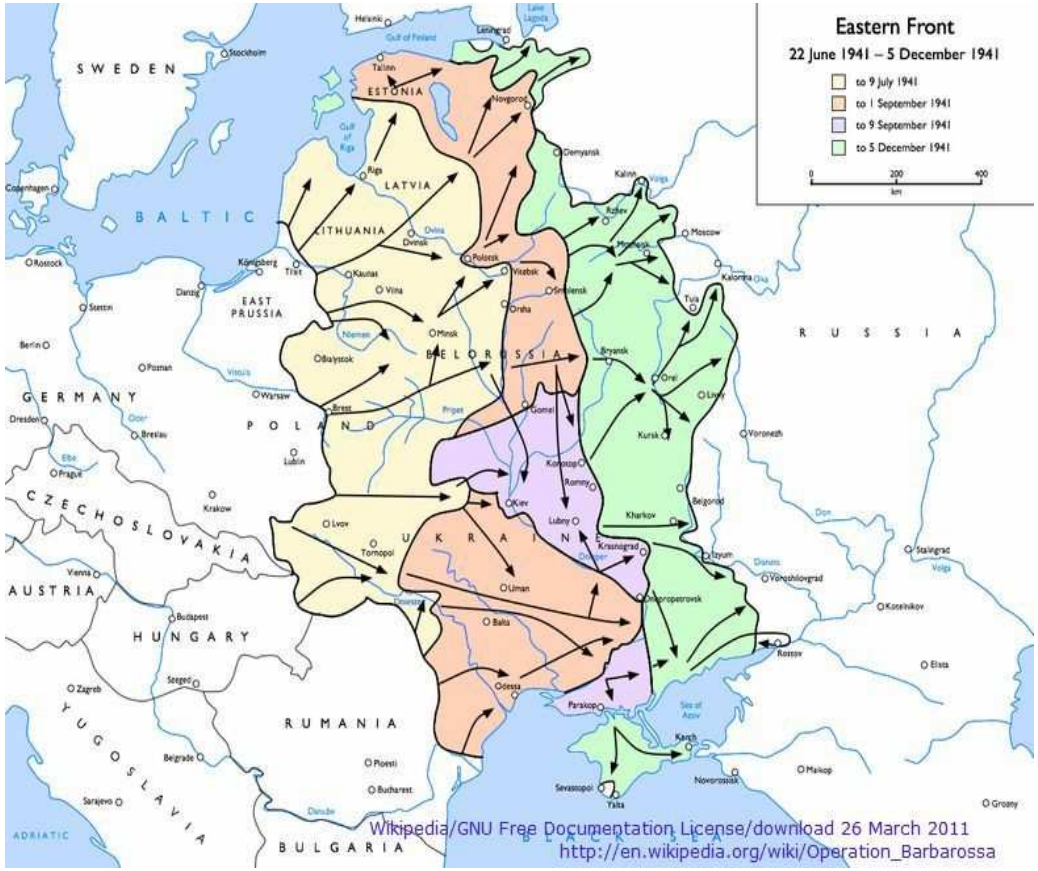
Naval Strenght:

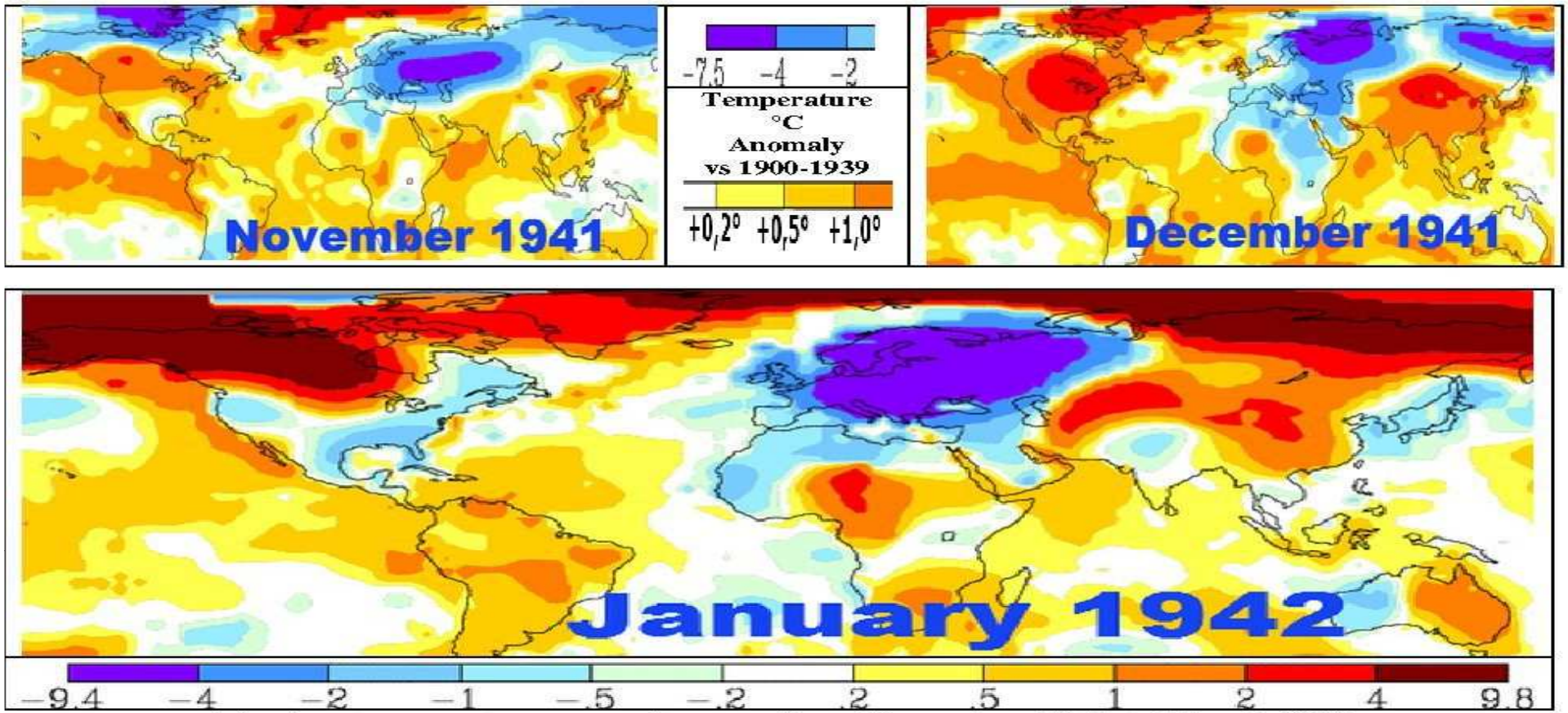
Kriegsmarine:
about 100 ships

Baltic Fleet:
about 100+ ships

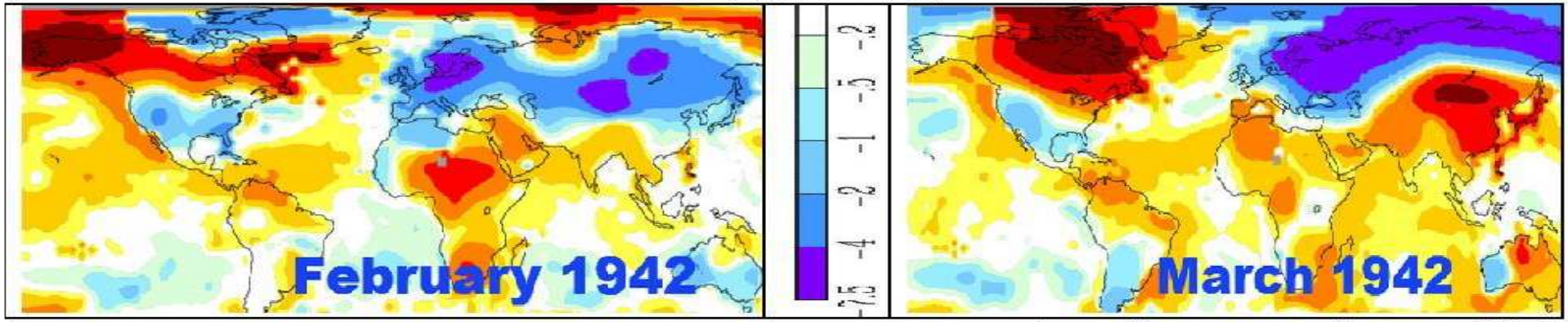
Persumably many thousand air planes on each side.

Heavy sea mine operation.



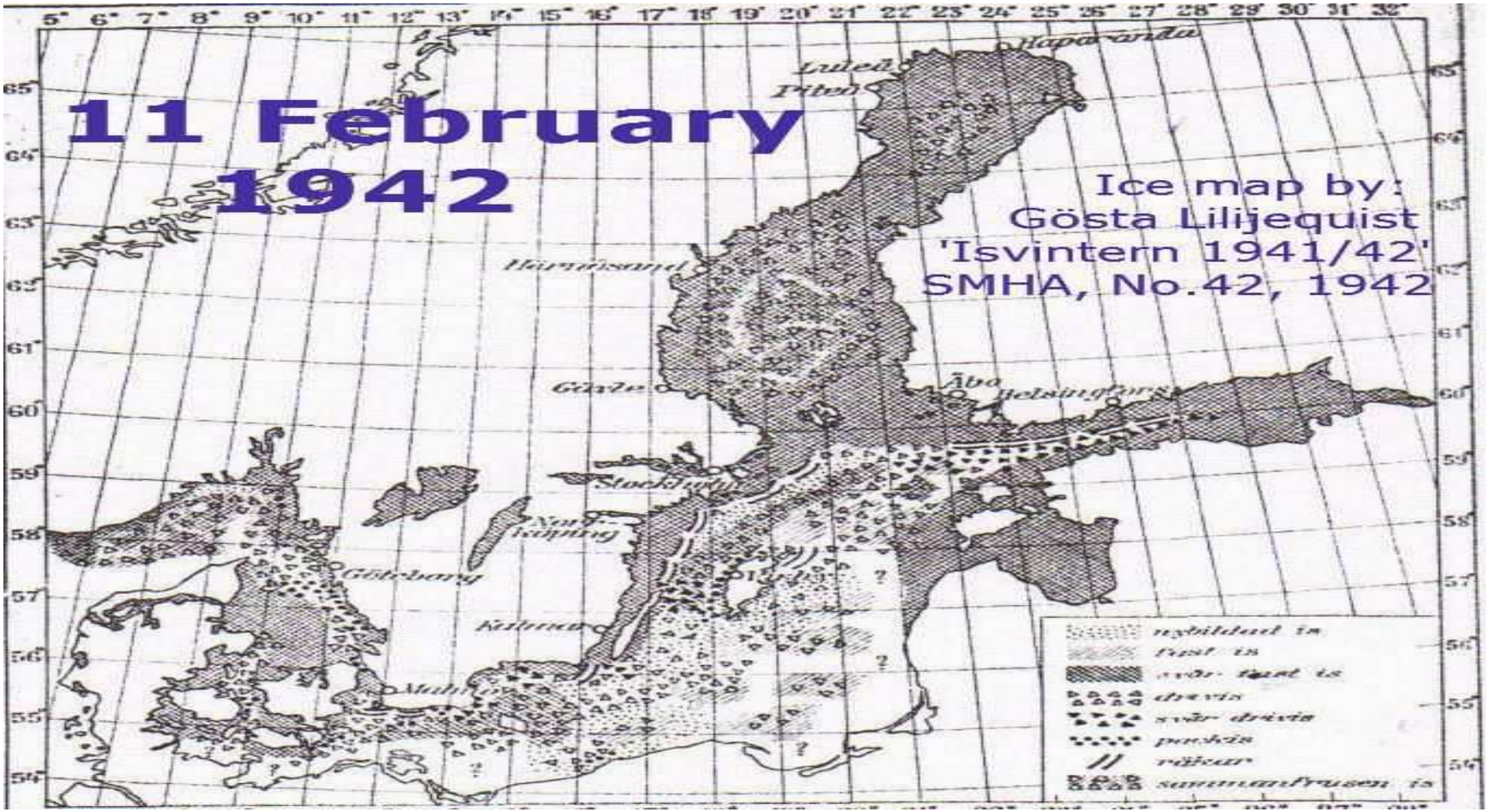


The low temperatures over Europe from November 1941 to March 1942 make it to the coldest winter on record.

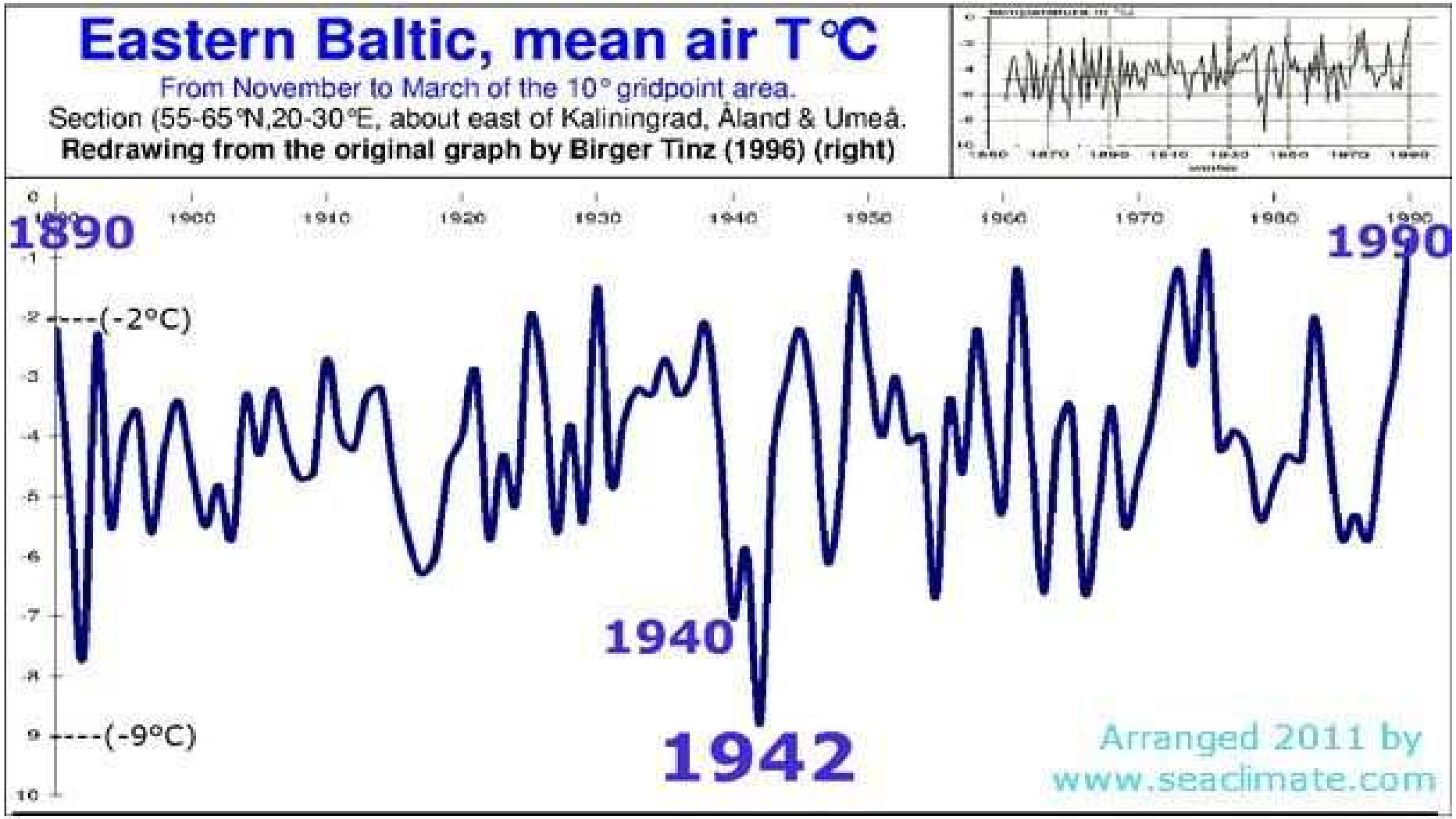


Arranged by: www. seaclimate.com /2011

After 1939/40, the Baltic is ice covered for the second time since 1883.

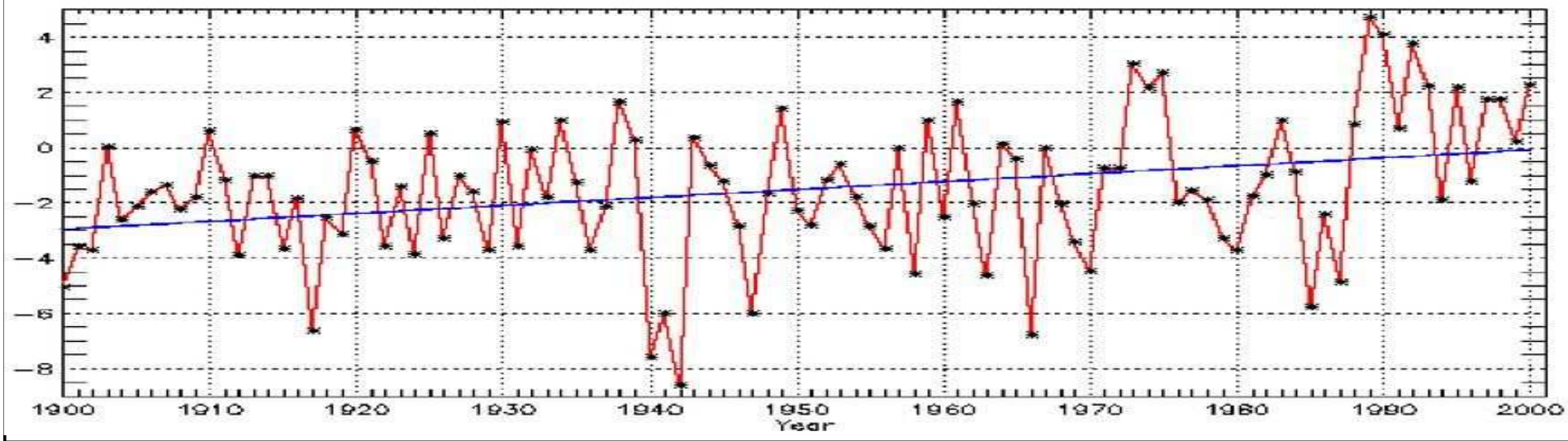


The Eastern Baltic particulary cold!

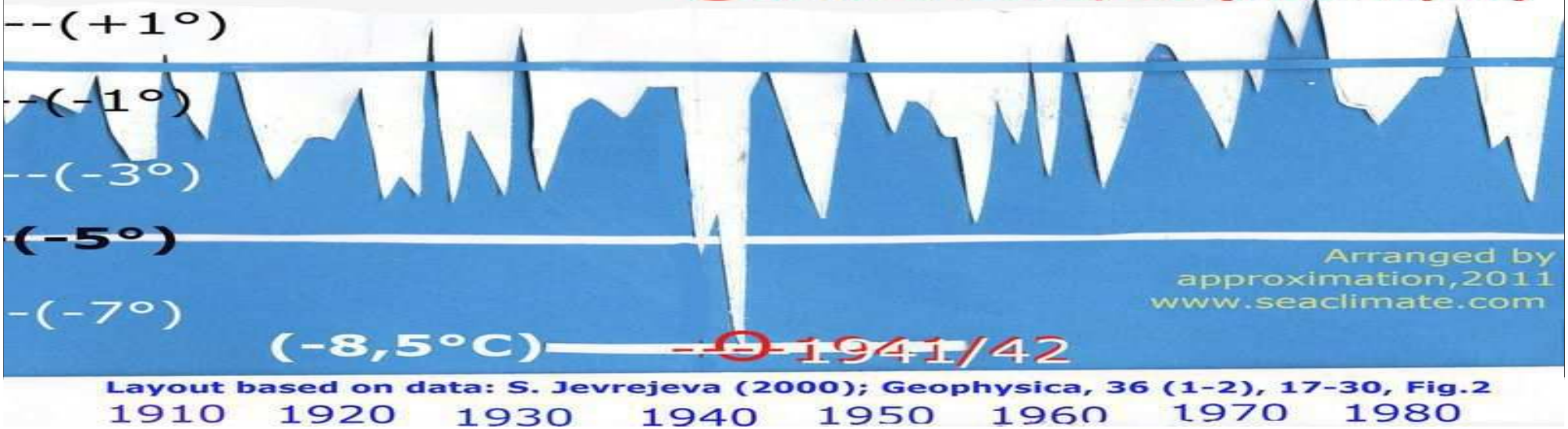


Sweden , January to March, 1900-2000

T°C, Departure from Average. Source: http://www.ncdc.noaa.gov/gcag/2008

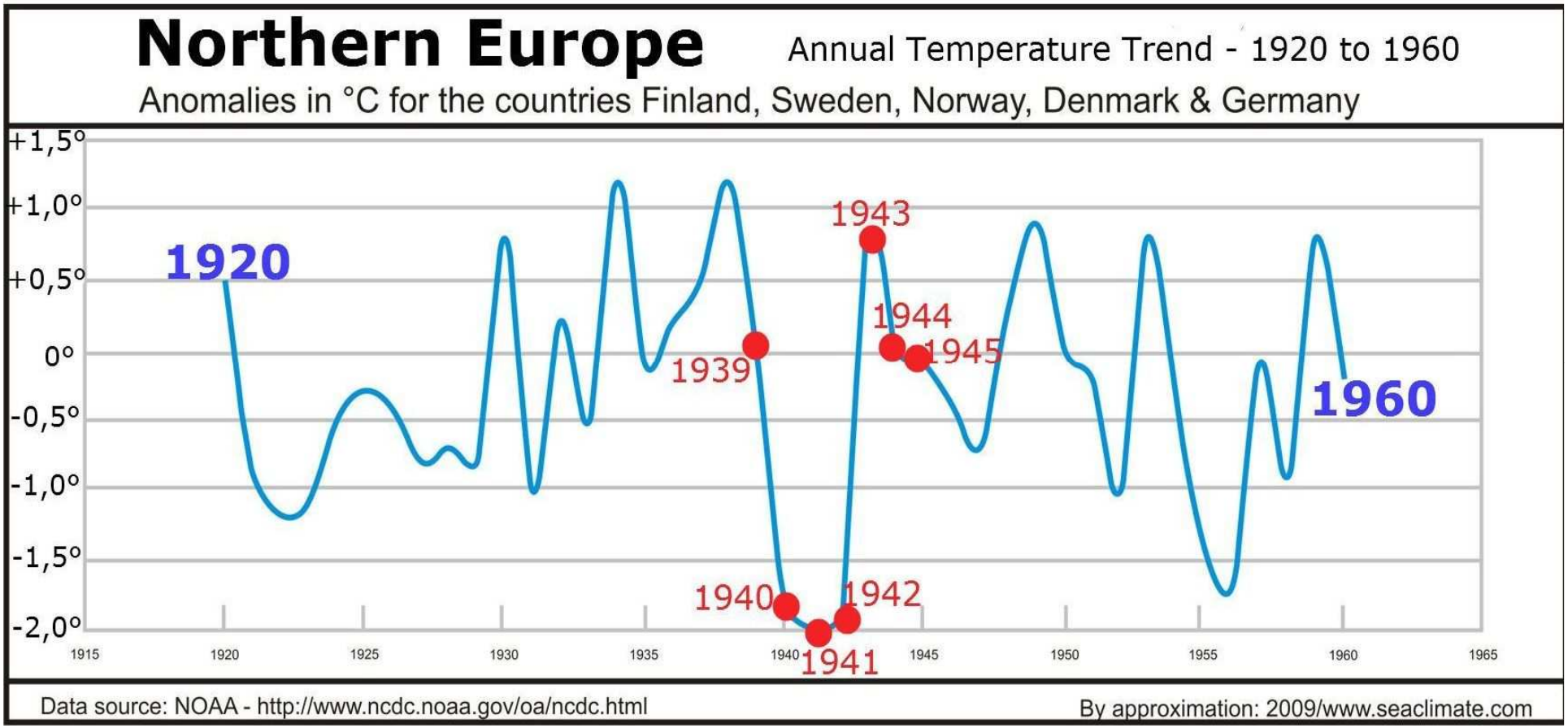


Tallinn / Estonia mean temperature November to April 1900-1990



Layout based on data: S. Jevrejeva (2000); Geophysica, 36 (1-2), 17-30, Fig.2

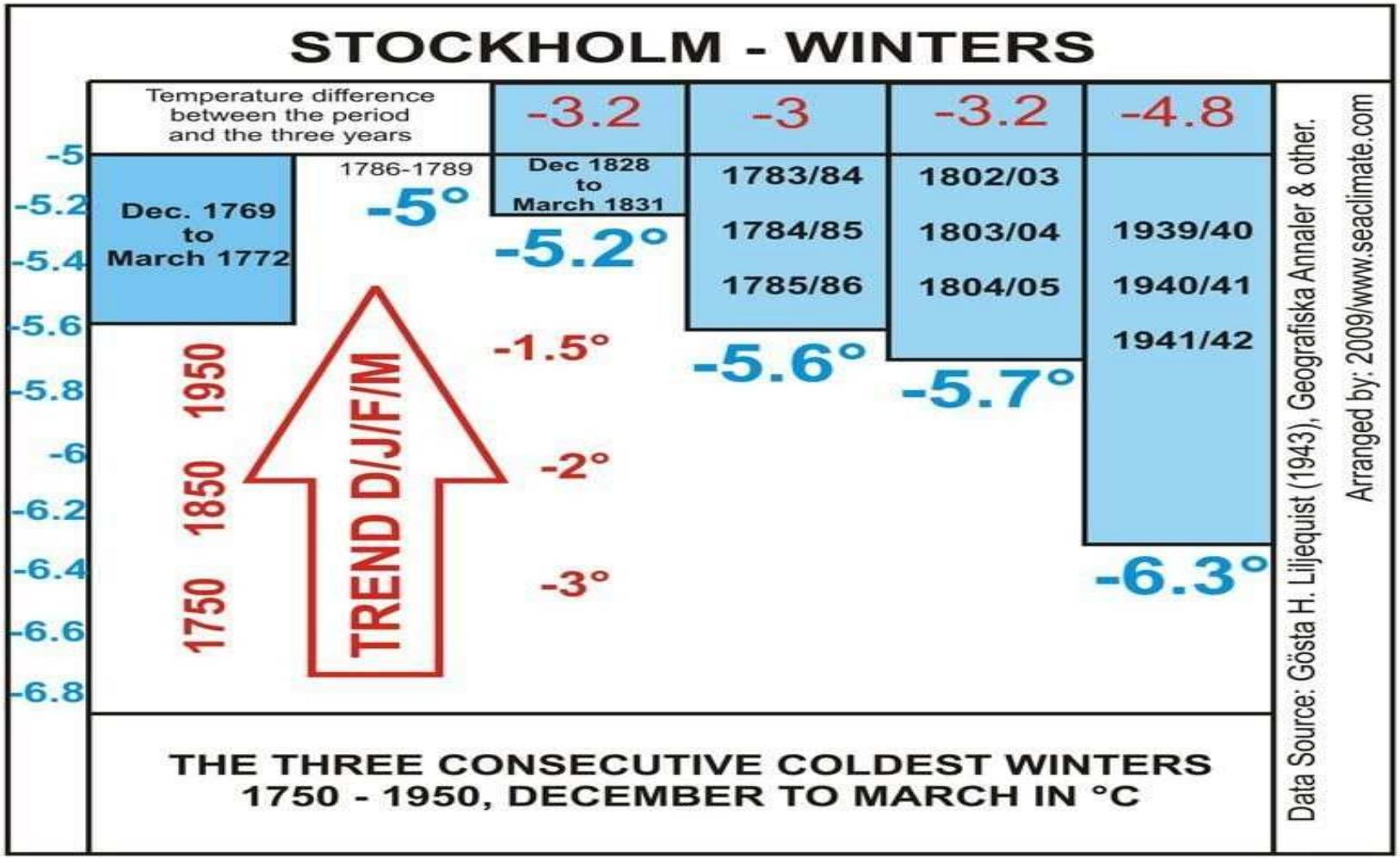
The three extreme winters in a row are strong evidence of a significant contribution by the **naval war**.

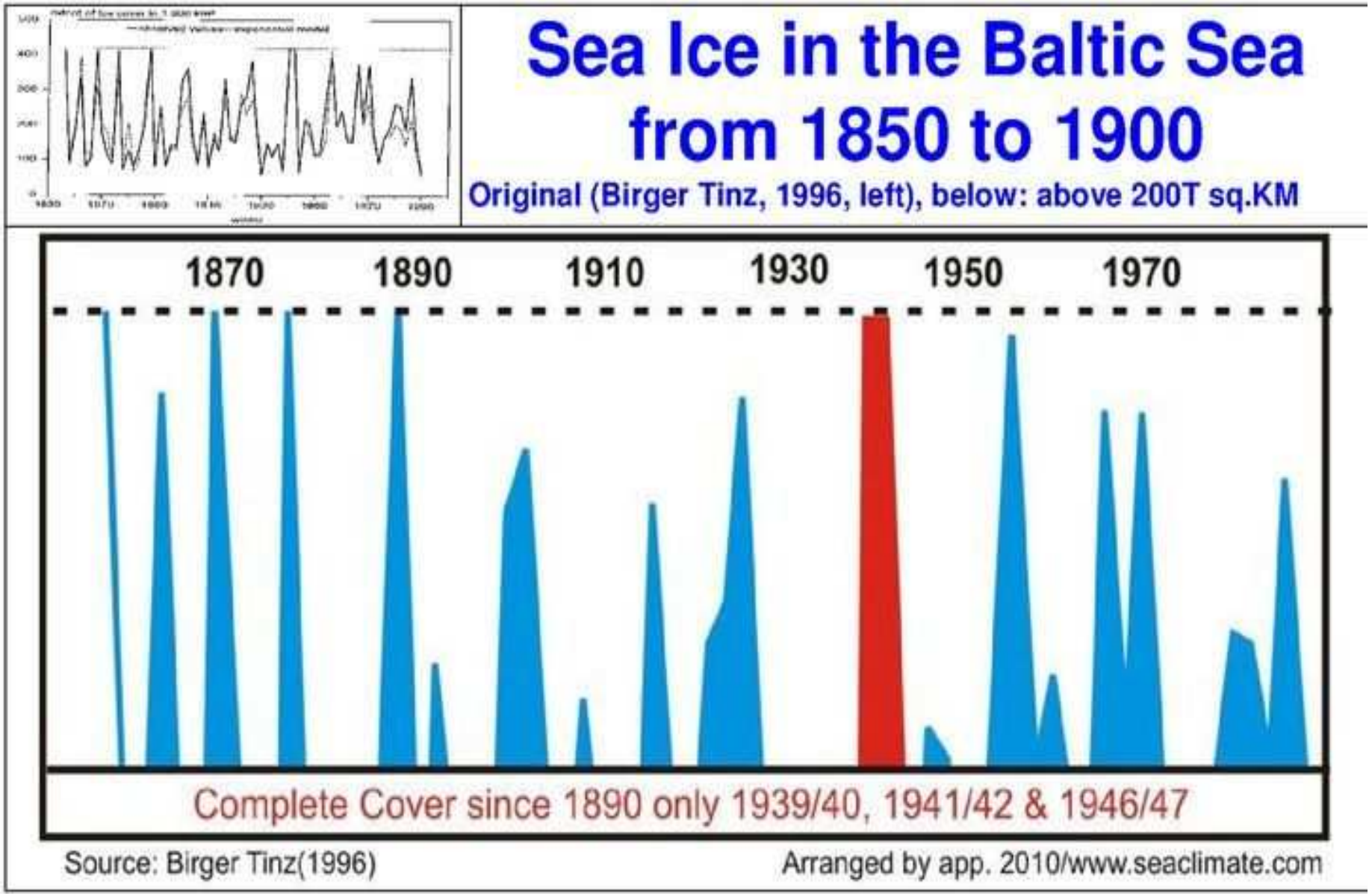


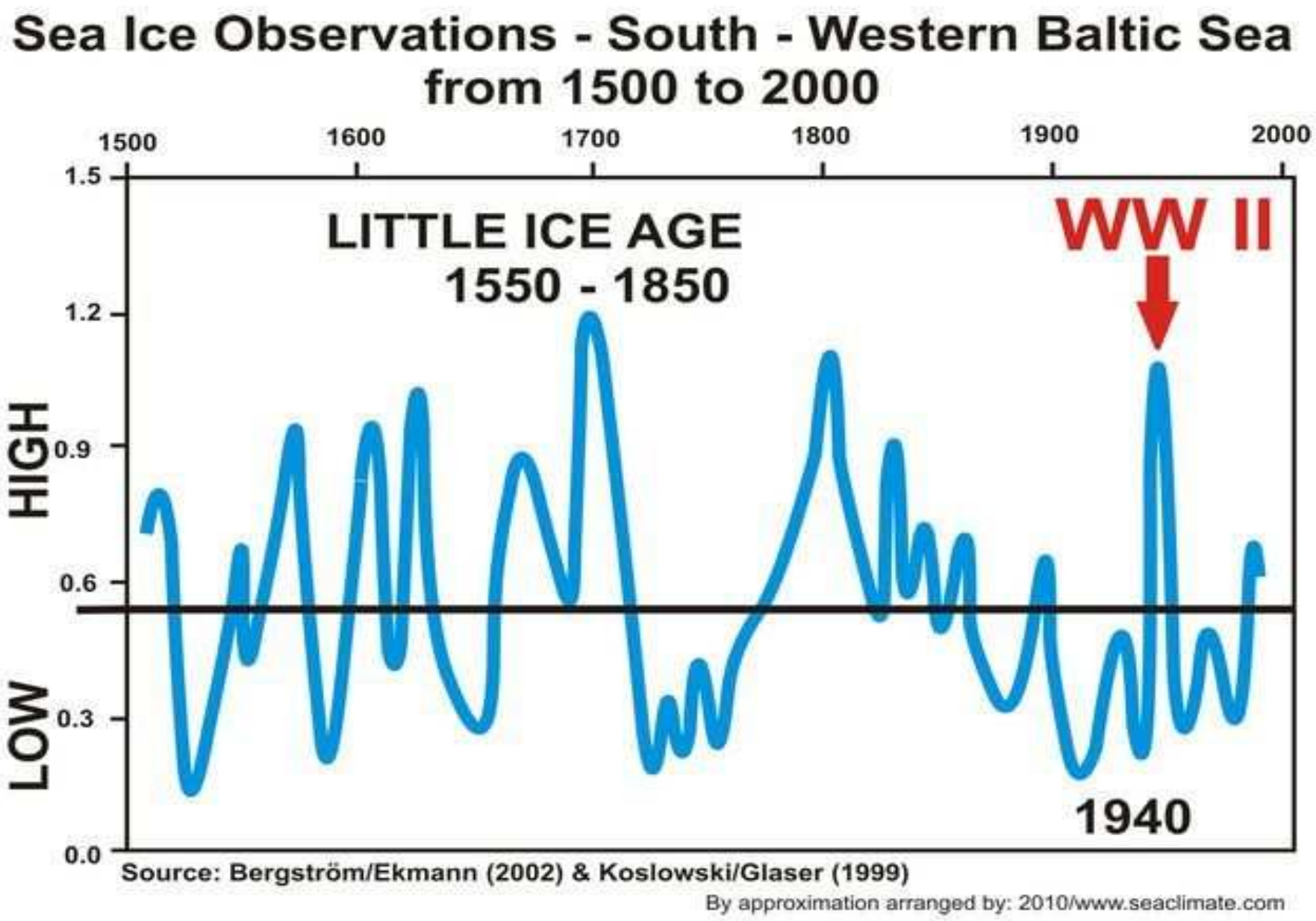
Stockholm's coldest winters since 1757

Rank No	Mean temp. of Dec. – March	**Mean temp. of the three coldest months**	Sum of negative monthly means temp.
1	1788/89, -8.0°	**1941/42, -9.2°**	1788/89, -31.9°
2	1808/09, -7.6°	1788/89, -9.1°	1808/09, -30.5°
3	1941/42, -7.5°	1808/09, -8.7°	1941/42, -30.5°

Data source: G. Lilijequist, Stockholm Winters (1942) Arranged by: www.seaclimate.com/2005




Sea Ice in the Baltic Sea from 1850 to 1900
Original (Birger Tinz, 1996, left), below: above 200T sq.KM
1870
1890
1910
1930
1950
1970
Complete Cover since 1890 only 1939/40, 1941/42 & 1946/47
Source: Birger Tinz(1996)
Arranged by app. 2010/www.seaclimate.com


Sea Ice Observations - South - Western Baltic Sea
from 1500 to 2000
1500
1600
1700
1800
1900
2000
1.5
1.2
0.9
0.6
0.3
0.0
HIGH
LOW
LITTLE ICE AGE
1550 - 1850
WW II
1940
Source: Bergström/Ekmann (2002) & Koslowski/Glaser (1999)
By approximation arranged by: 2010/www.seaclimate.com

Summary

- Each of the three war winters provides proof of a link of **naval war** activities to low air temperature and strong sea ice.

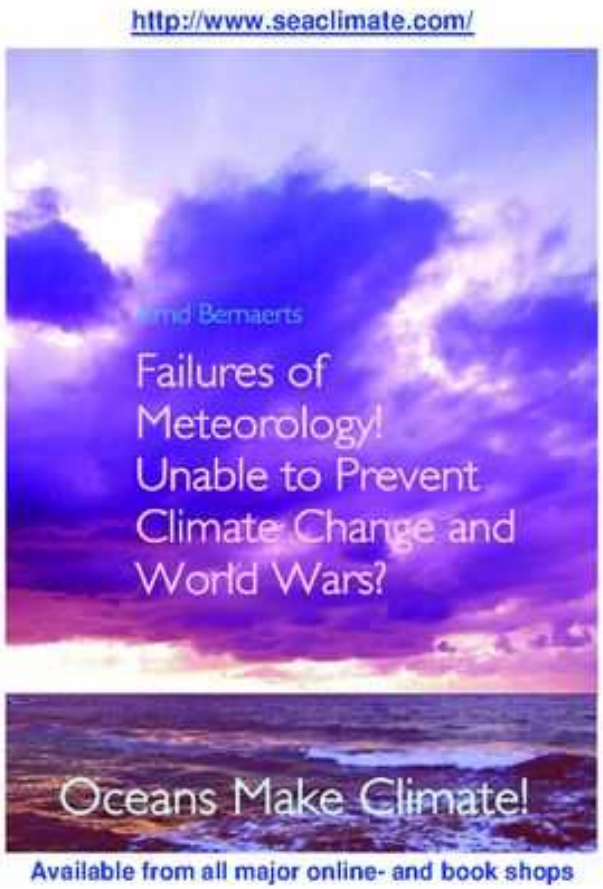
- Since the middle of the Little Ice Age (about 1760) no group of three winters has been as cold as 1939/40 – 1941/42, which possibly could be the most severe since the last Ice Age many thousand years ago.

Thanks for
your kind interest!
Feel free to ask questions!

More PPT themes about the impact
of naval warefare during WWI & WWII

at: www.climate-ocean.com

The lecture is based on the book:



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Unable to Prevent Climate Change and World Wars?
Oceans Make Climate!

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Book on Demand/BoD; ISBN 978-3-8448-1284-8

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