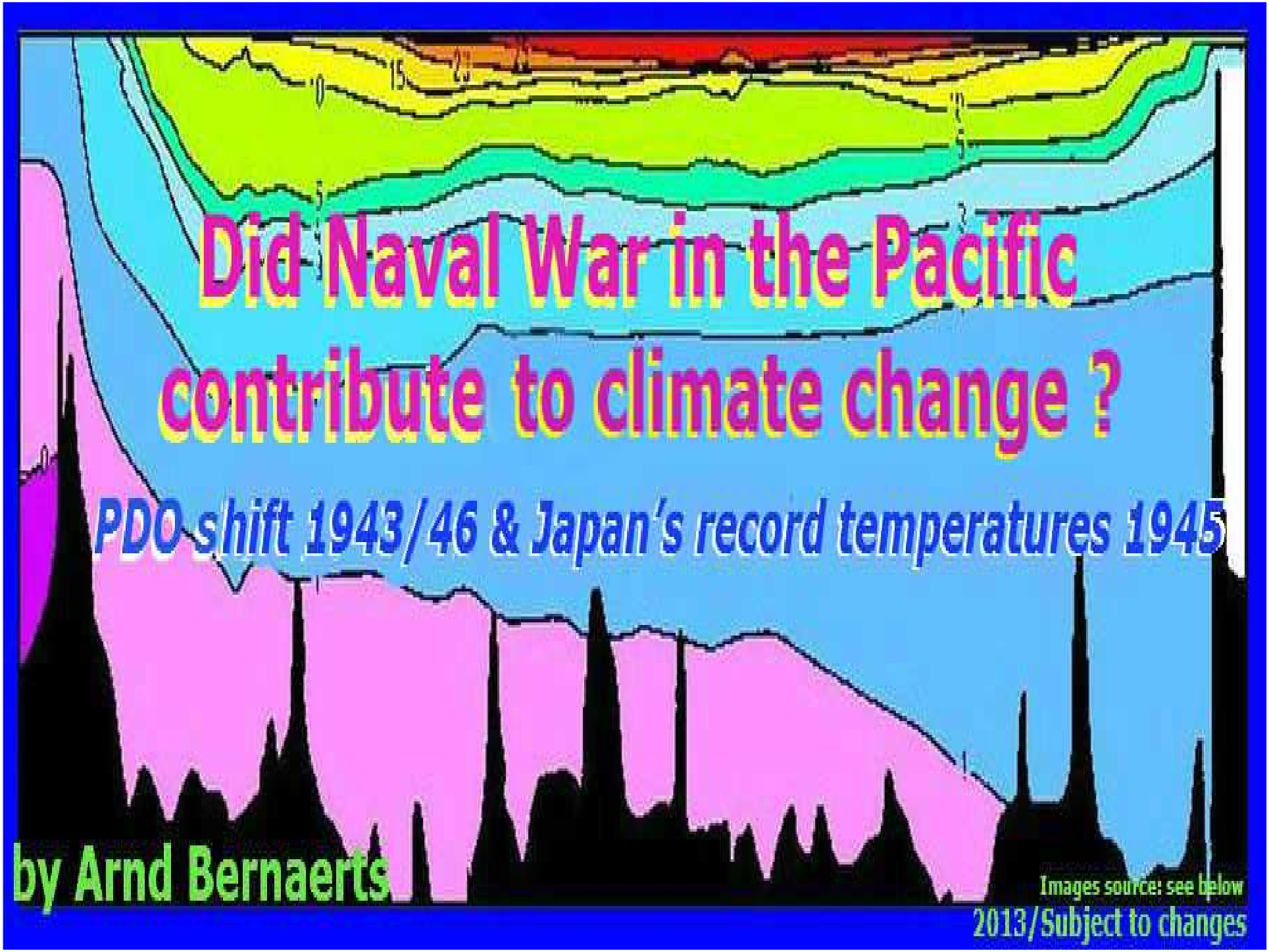
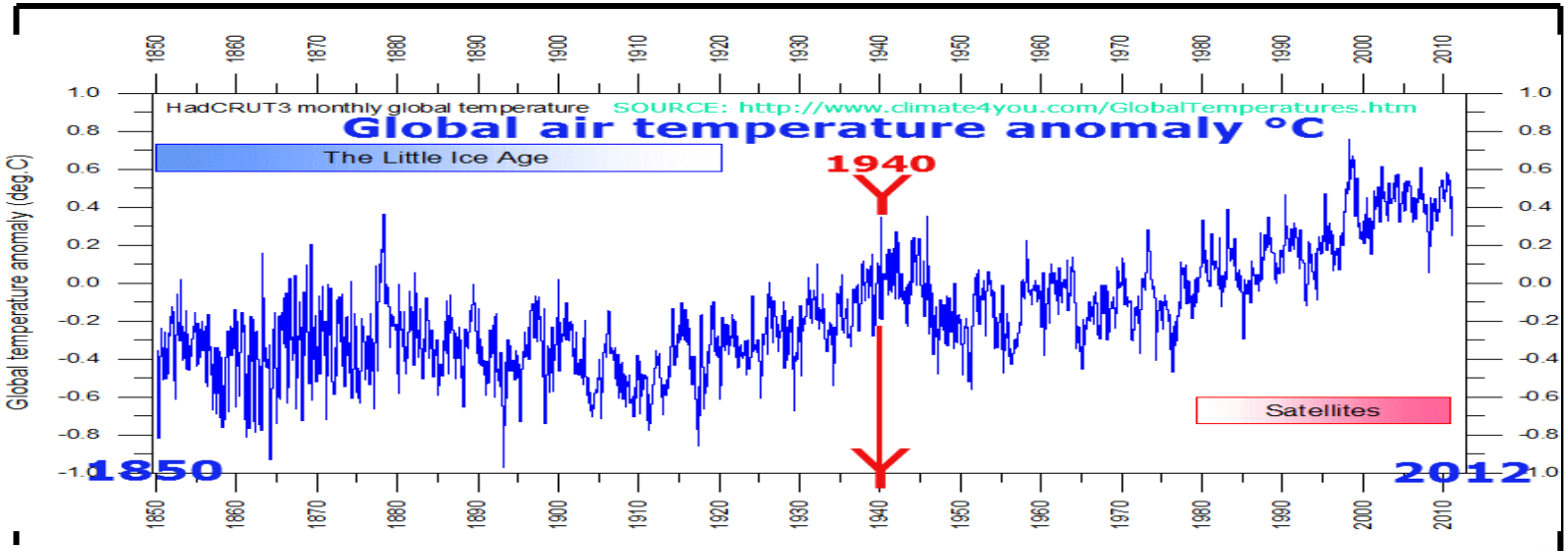
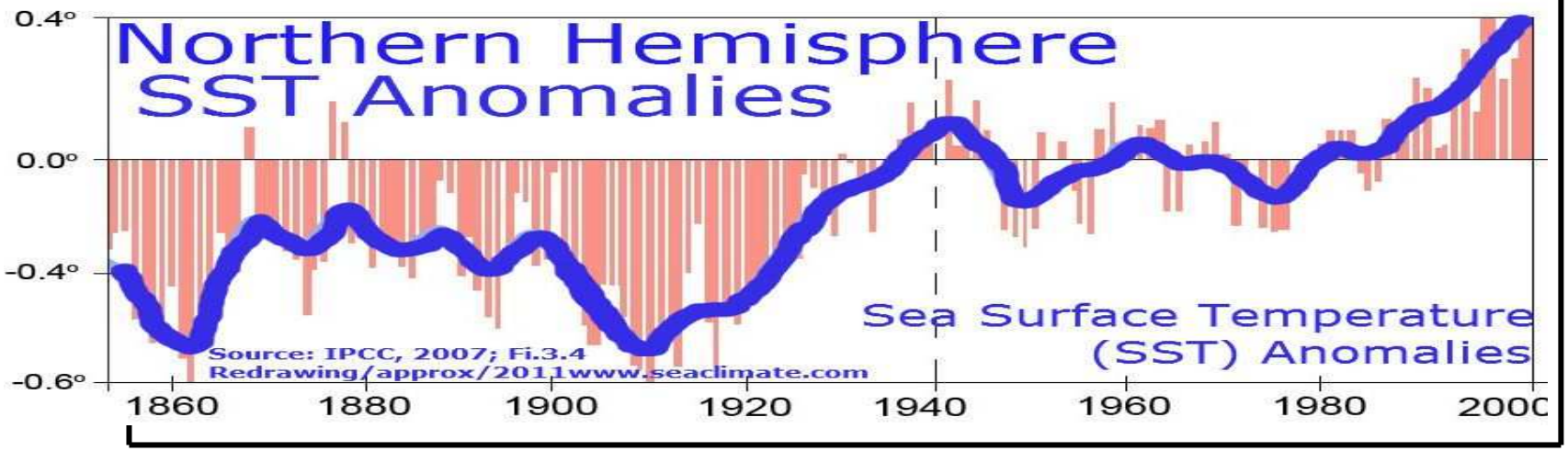

Did Naval War in the Pacific contribute to climate change ?
PDO shift 1943/46 & Japan's record temperatures 1945
by Arnd Bernaerts
Images source: see below
2013/Subject to changes

Fact is:

The world, particularly the Northern Hemisphere, cooled down from winter 1939/40 to about 1975.





QUESTION:
Can a severe naval war in the Atlantic and Pacific over several years be staged without risking climatic changes?

ANSWER: Definitely not! With regard to the contribution of the Pacific, we can offer:

- **the very interesting case of the Pacific Decadal Oscillation (PDO) phase shift during the war in the Pacific 1942-1945; and**
- **the extreme low winter temperature in Japan 1944/45, and again the in May and July 1945.**

By far the most complex part is PDO, which is actually a case:

about physics and structure of a huge water body

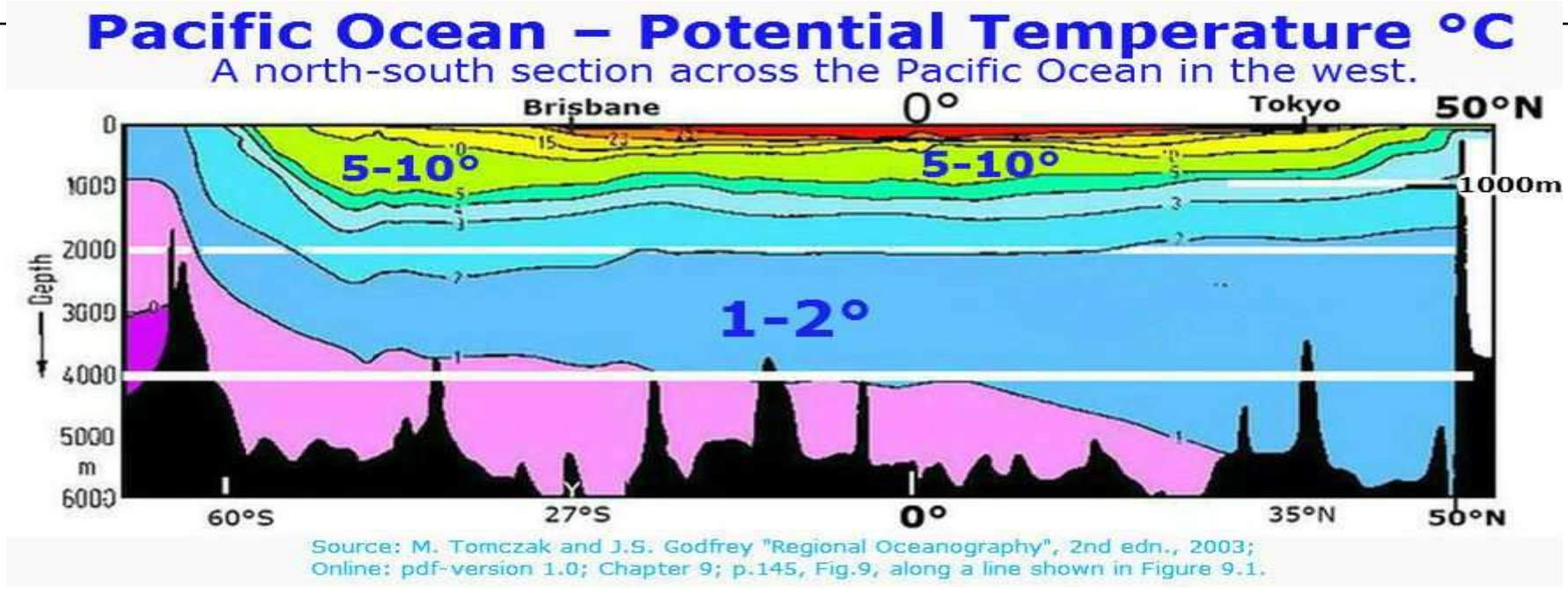
versus

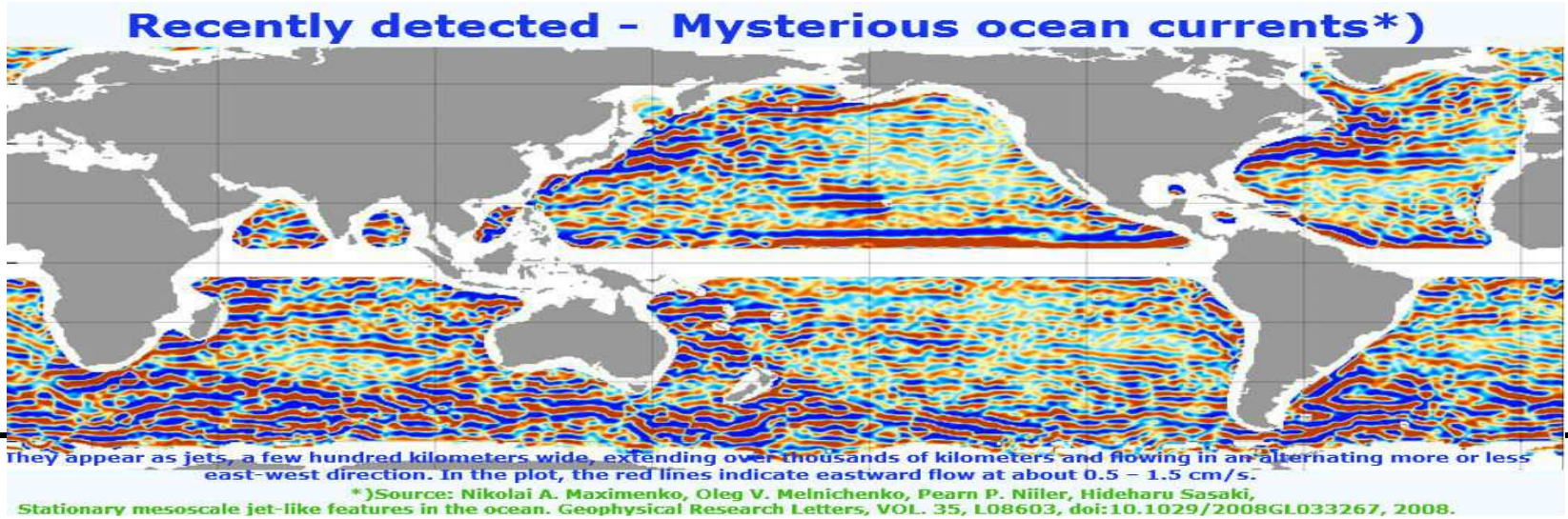
brute forces unlashed on the marine environment.

FIRST TOPIC: The marine environment in question together with an outline of the magnitude of naval power, may have changed a 'natural' status toward a cooling world for three decades.

SECOND TOPIC: The record cold temperatures in Japan, just a few months before war ended, which is evidently fairly easy to link to huge military activities in Japans sea areas.

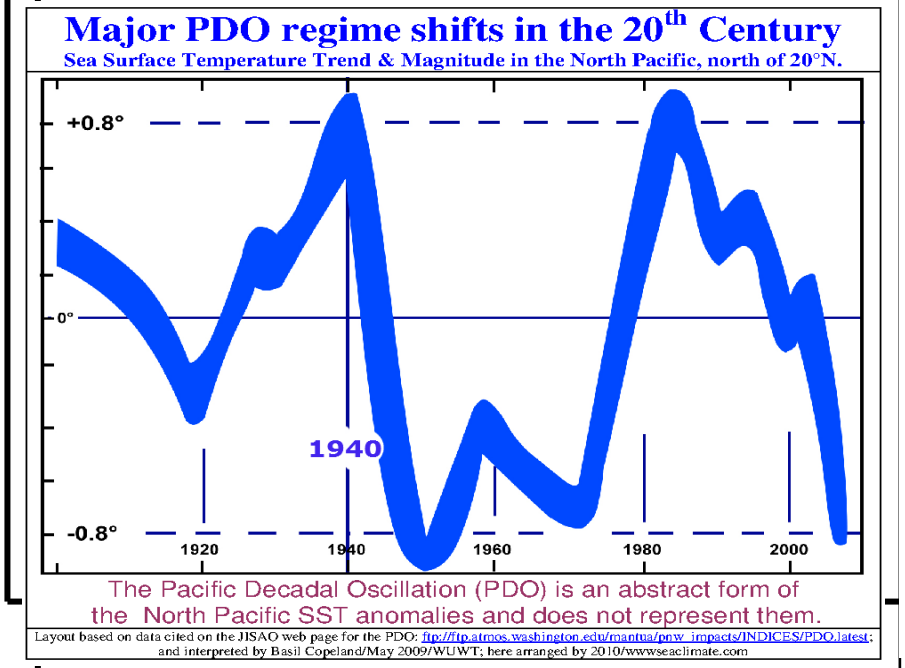
The Pacific is an extreme cold environment with an extreme complex structure.

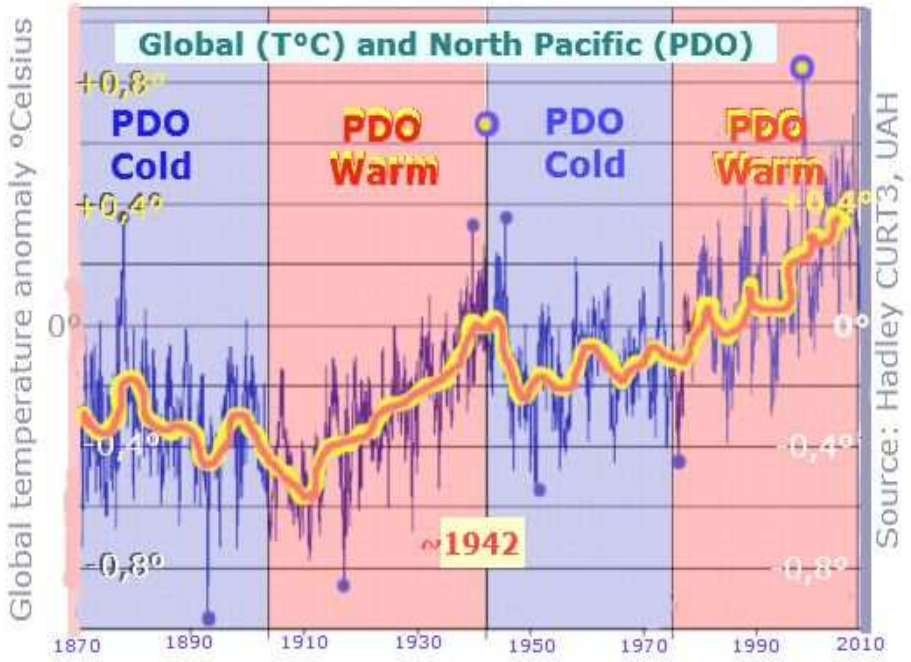




PDO shifted in the early 1940s!

The Pacific Decadal Oscillation (PDO) shows pattern of change in the Pacific Ocean's climate. The PDO is detected as warm or cool surface waters in the Pacific Ocean, north of 20°N. During a "warm", or "positive", phase, the west Pacific becomes cool and part of the eastern ocean warmth; during a "cool" or "negative" phase, the opposite pattern occurs. These phases shift in terms of several decades, e.g. 20 to 30 years. http://en.wikipedia.org/wiki/Pacific_decadal_oscillation

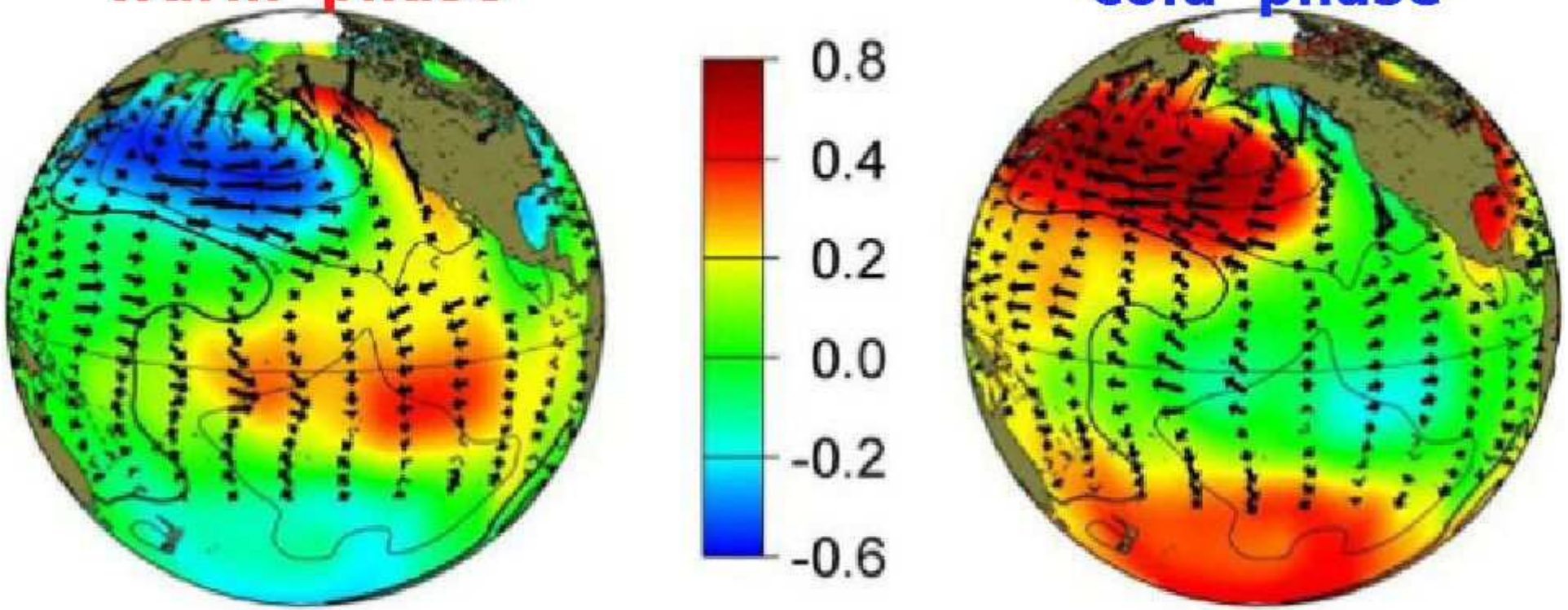




Pacific Decadal Ocillation

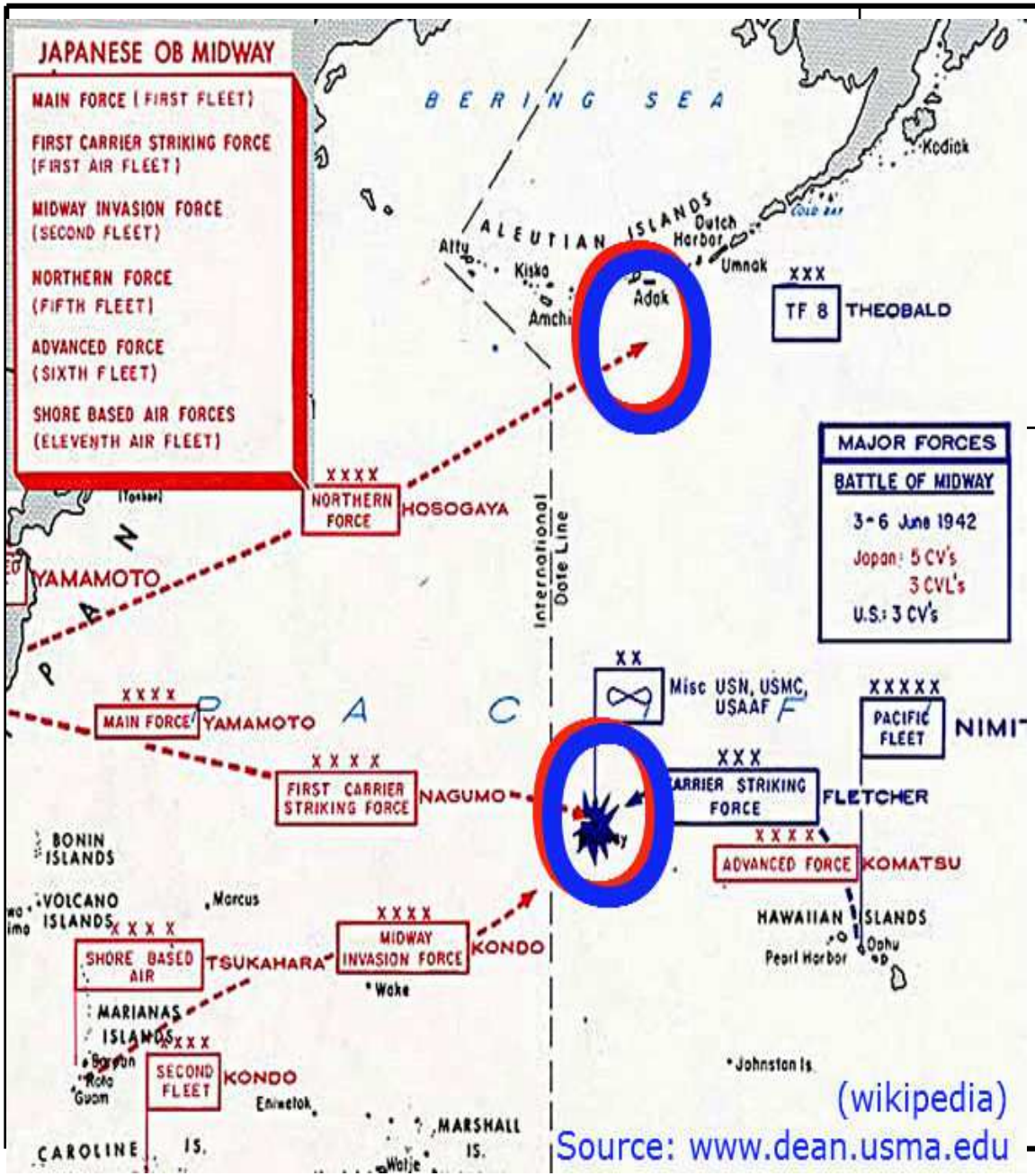
positive phase
'warm' phase

negative phase
'cold' phase



http://en.wikipedia.org/wiki/Pacific_decadal_oscillation

everal regime shifts are apparent both in the reconstructions and instrumental data, during the 20th century regime shifts associated with concurrent changes in SST, LP, land precipitation and ocean cloud cover occurred in 1924/1925,**1945/1946** and 1976/1977:



Aleutian Islands Campaign

3. June 1942 – August 1943

USA	Strength	Japan
144,000		8,500
Casualties and losses		
1,481 killed 225 aircraft destroyed **US Navy losses (3)**: USS Abner Read] USS S-27 (SS-132) USS Grunion (SS-216)		4,350 killed 7 warships sunk 9 cargo transport ships sunk

Battle of Midway
4–7 June 1942

Result: American victory

USA	Strength	Japan
3 carriers ~7 heavy cruisers 1 anti-aircraft cruiser 15 destroyers 233 carrier-based aircraft 127 land-based aircraft 16 submarines[1]		4 carriers 2 battleships ~15 support ships 248 carrier-based aircraft[2] 16 floatplanes Did not participate in battle: 2 light carriers 5 battleships ~41 support ships
Casualties and losses		
1 carrier sunk 1 destroyer sunk ~150 aircraft destroyed 307 killed[3]		4 carriers sunk 1 cruiser sunk 248 aircraft destroyed[4] 3,057 killed[5]

http://en.wikipedia.org/wiki/Battle_of_Midway

Dutch East Indies campaign

8 December 1941–9 March 1942

Result: Japan victory/Occupation of Indonesia

Allies	Strength	Japan
33 warships[1] 41 submarines[2] 234 aircraft[3] 67,000 Dutch troops [4] 8,000 Anglo-American troops[5]		52 warships[6][7] 18 submarines[2] 50,000 troops[8]
Casualties and losses		
62,116 2,383 killed[9] 59,733 captured[9]		**671** killed[9]

http://en.wikipedia.org/wiki/Dutch_East_Indies_campaign

Philippines Campaign

8 Dec. 1941 – 8 May 1942

Result: Japanese victory/ Occupation of Philippines

Allies	Strength	Japan
About 151,000[1]		129,435[2]
Casualties and losses		
146,000 25,000 killed 21,000 wounded 100,000 captured[3]		**22,500** 9,000 killed 500 missing 13,200 wounded

http://en.wikipedia.org/wiki/Battle_of_the_Philippines

Battle of the Coral Sea

4–8 May 1942

Allies	Strength	Japan
26 naval ships 128 aircrafts		42 naval ships 150 aircraft
Casualties and losses		
3 ships sunk 1 ship damaged 69 aircrafts destroyed 656 killed		5 ships sunk 7 ships damaged 92 aircraft destroyed 966 killed

http://en.wikipedia.org/wiki/Battle_of_the_Coral_Sea

Solomon Islands campaign

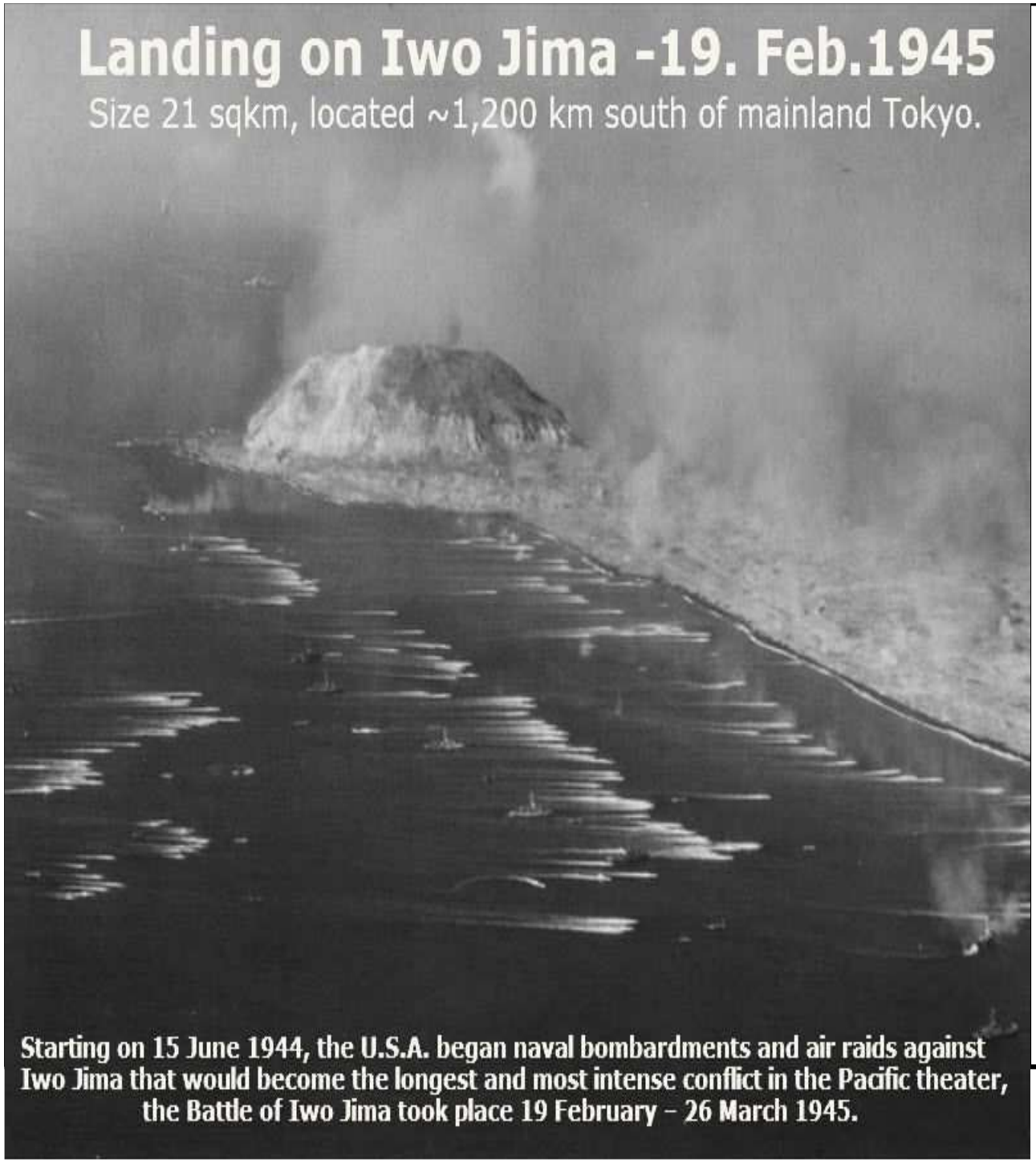
January 1942 – August 21, 1945

Allies	Casualties and losses	Japan
10,600 killed 40+ ships sunk, 800 aircraft destroyed[3]		80,000 killed 50+ ships sunk, 1,500 aircraft destroyed[3]

http://en.wikipedia.org/wiki/Solomon_Islands_Campaign

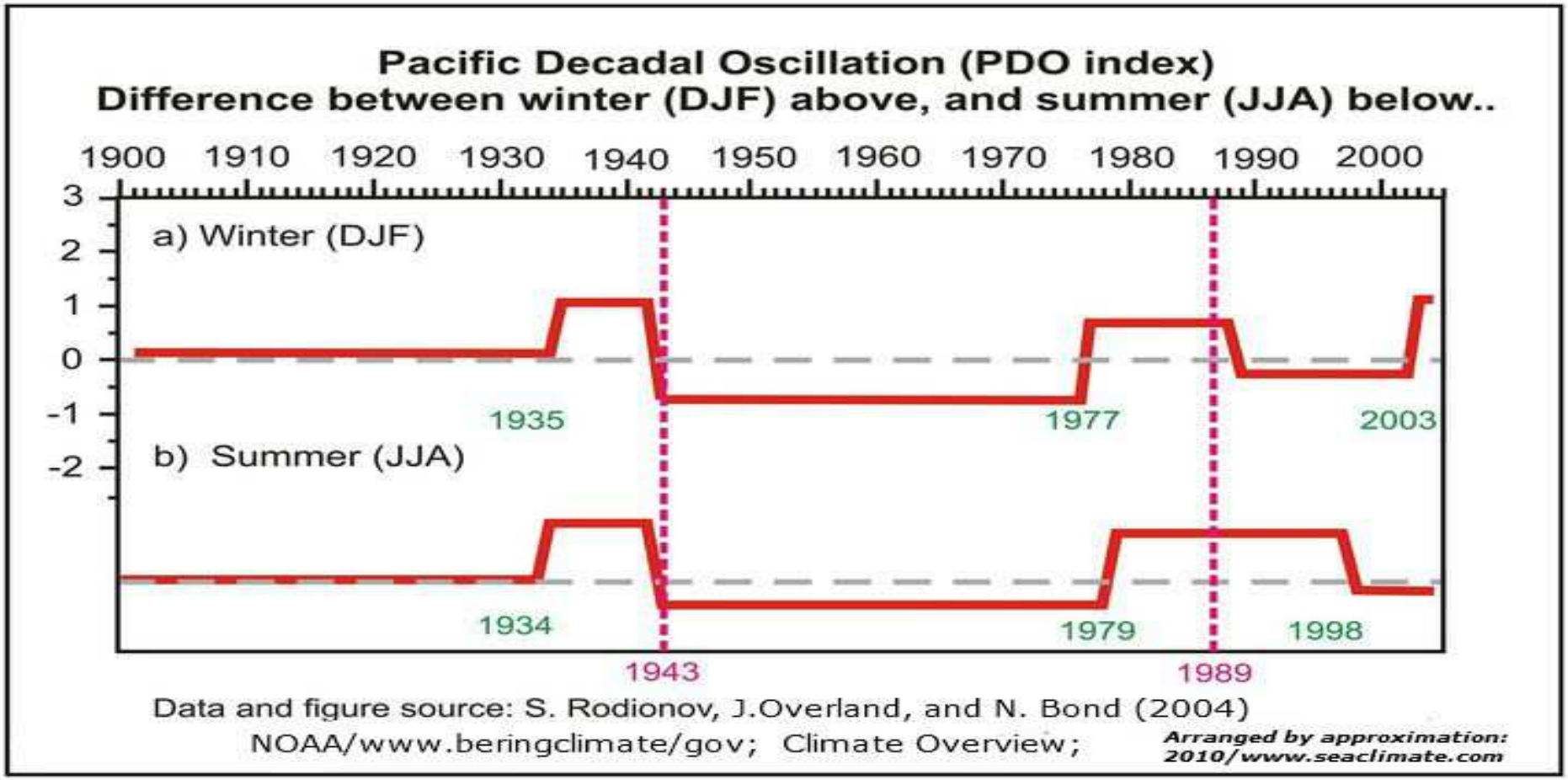
Landing on Iwo Jima -19. Feb.1945

Size 21 sqkm, located ~1,200 km south of mainland Tokyo.

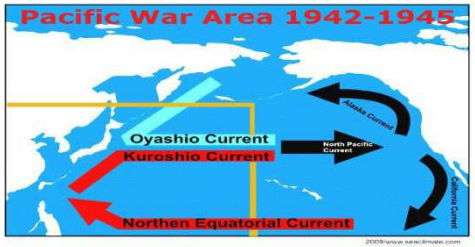


Starting on 15 June 1944, the U.S.A. began naval bombardments and air raids against Iwo Jima that would become the longest and most intense conflict in the Pacific theater, the Battle of Iwo Jima took place 19 February – 26 March 1945.

Without external forcing a shift of the PDO regime simultaneously in winter/summer seems very unlikely!

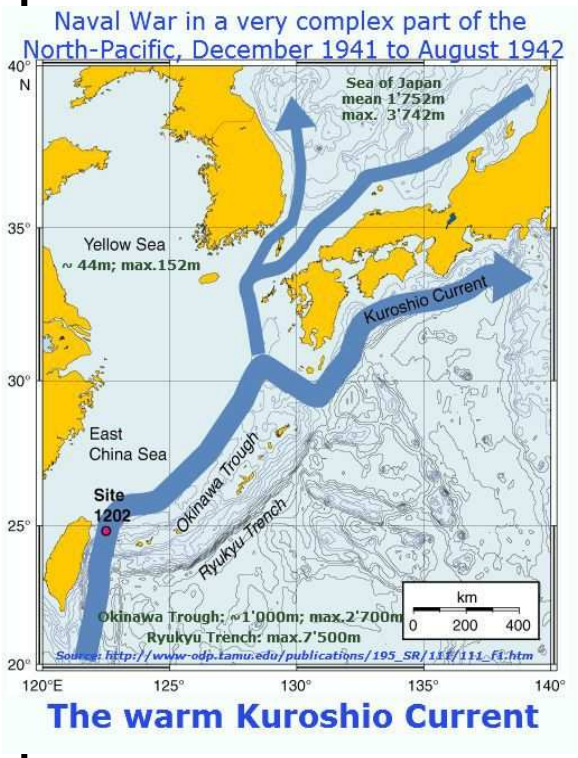


Record low temperatures in Japan 1945:

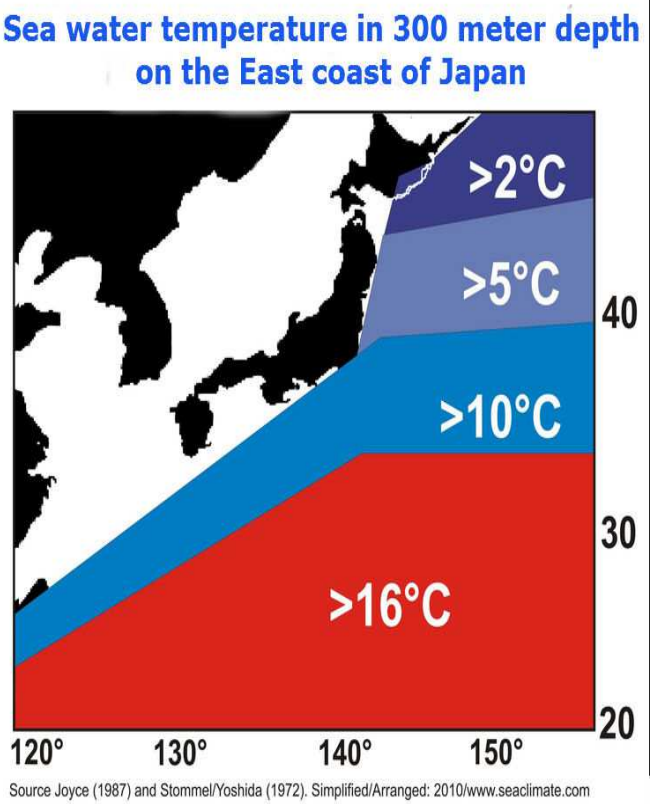


– Sea water temperatures
- Winter air temperatures (DJF)
- May & July air temperatures

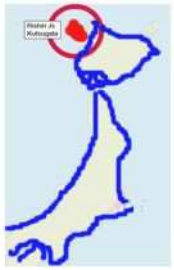
Sea water temperatures is the key!



All sea areas around Japan‘s coast are very deep and very cold. High naval activities presumably forced huge amount of cold water to the sea surface.



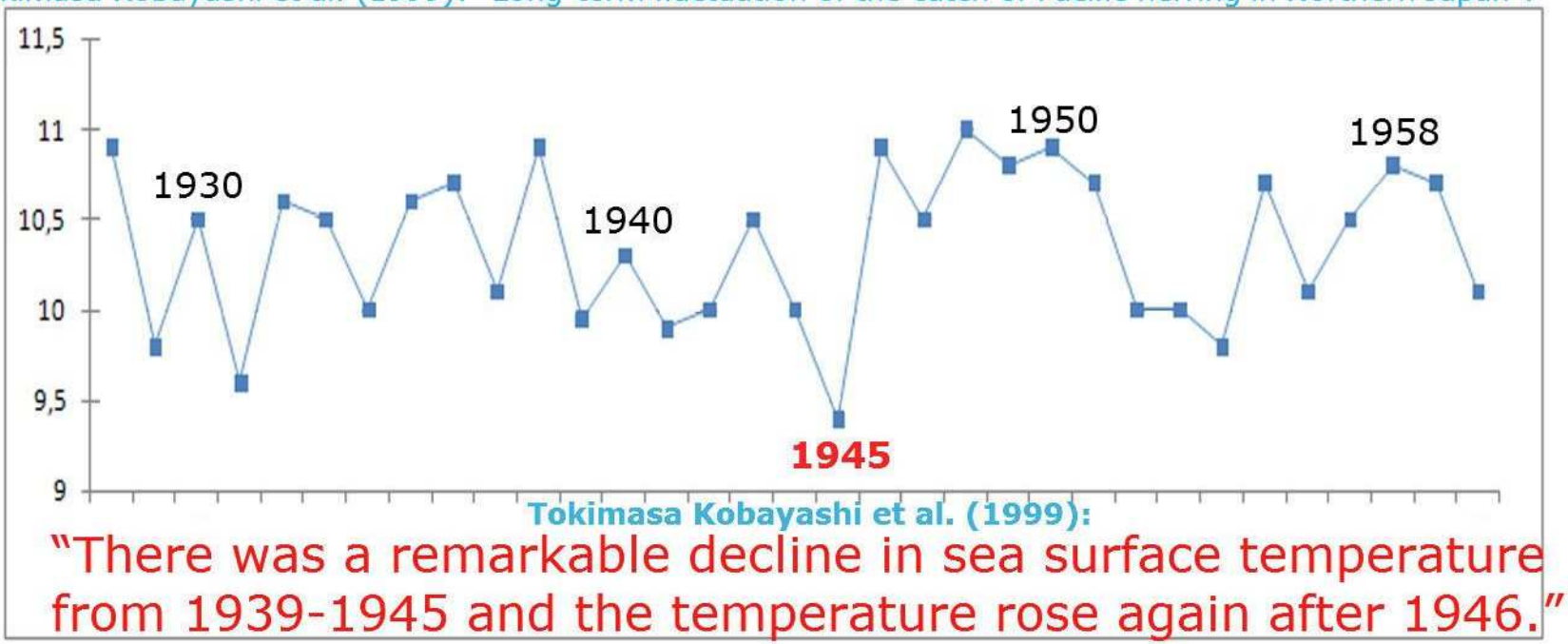
Low sea water temperatures in 1945, but also from 1939-1945



Annual sea water temperature
1928 to 1960
At Kutsugata on Rishirt Island – North-West Japan

http://www.pices.int/publications/scientific_reports/Report15/REX_Longterm.pdf

Tokimasa Kobayashi et al. (1999): "Long-term fluctuation of the catch of Pacific herring in Northern Japan".



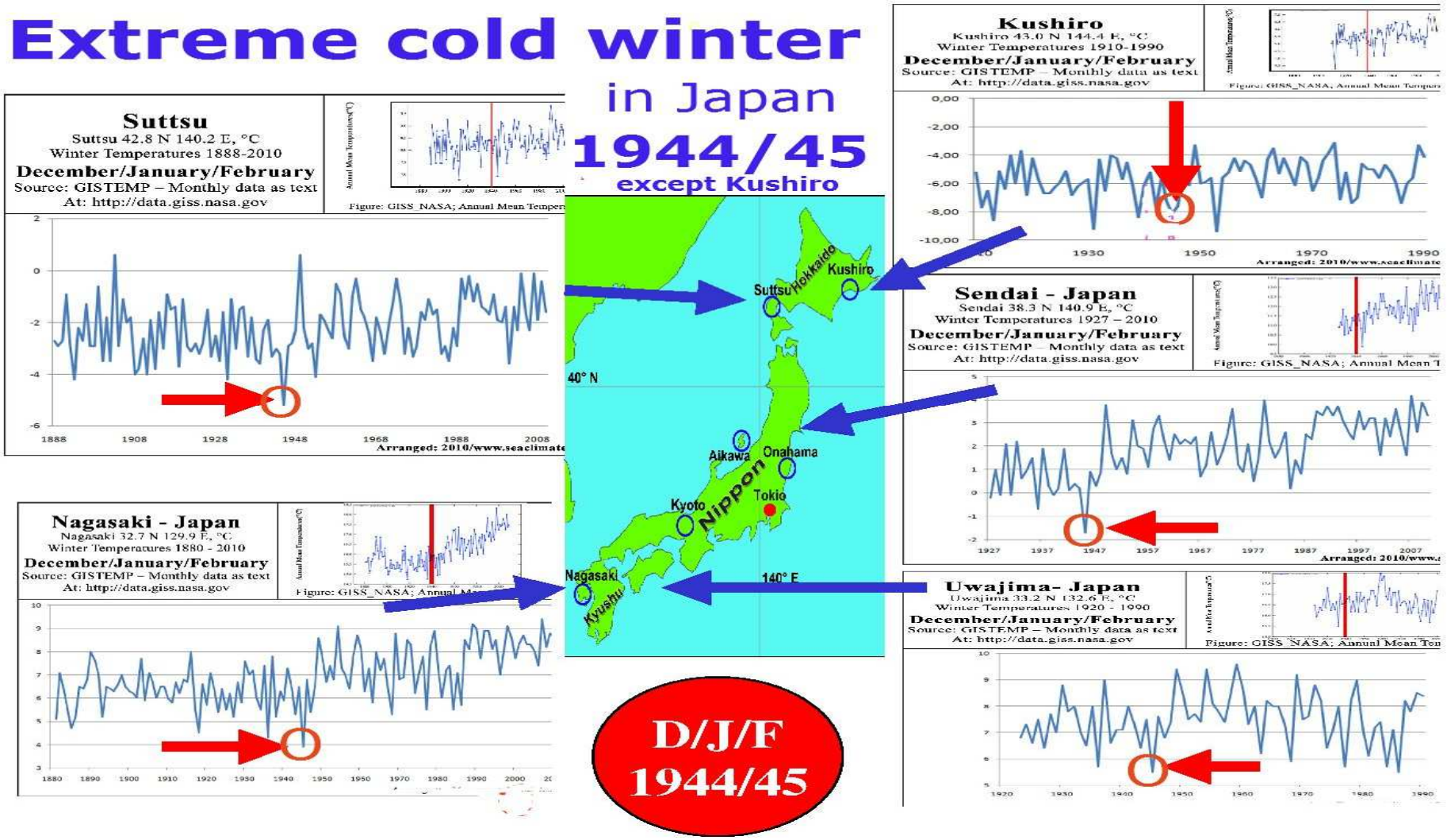
Tokimasa Kobayashi et al. (1999):

"There was a remarkable decline in sea surface temperature from 1939-1945 and the temperature rose again after 1946."

Data source: Tokisama Kobayashi et al.(1999)

2009/www.seaclimate.com, modified

Record low air temperatures around Japan in winter 1944/45



What caused the extreme winter at AIKAWA?
Naval warfare seems a very convincing option!

Air temperature
D/J/F – 1944/45

Aikawa
Aikawa 38.0 N 138.2 E, °C
Winter Temperatures 1910– 1990
December/January/Febraury
Source: GISTEMP – Monthly data as text
At: http://data.giss.nasa.gov

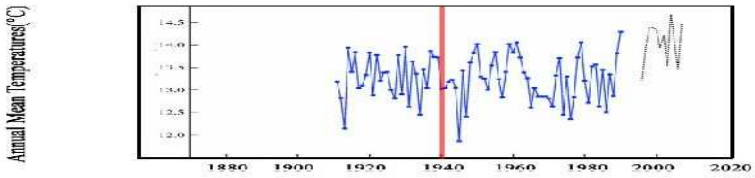
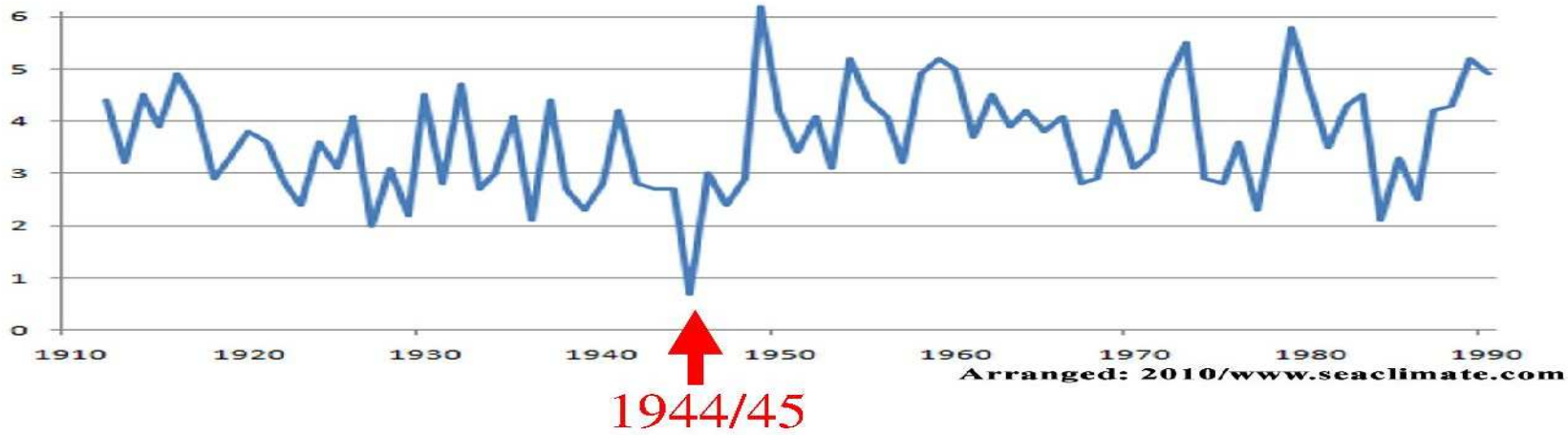
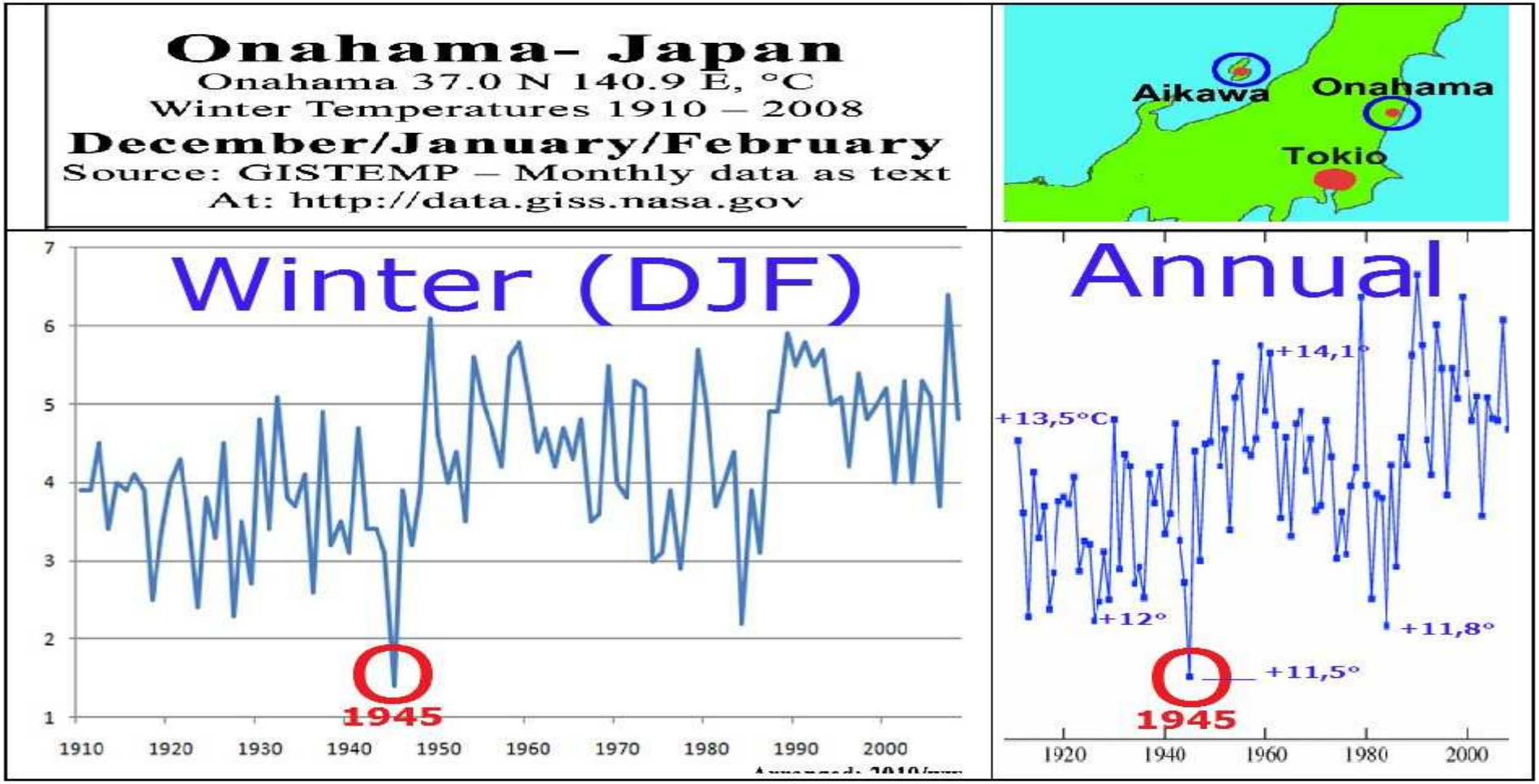


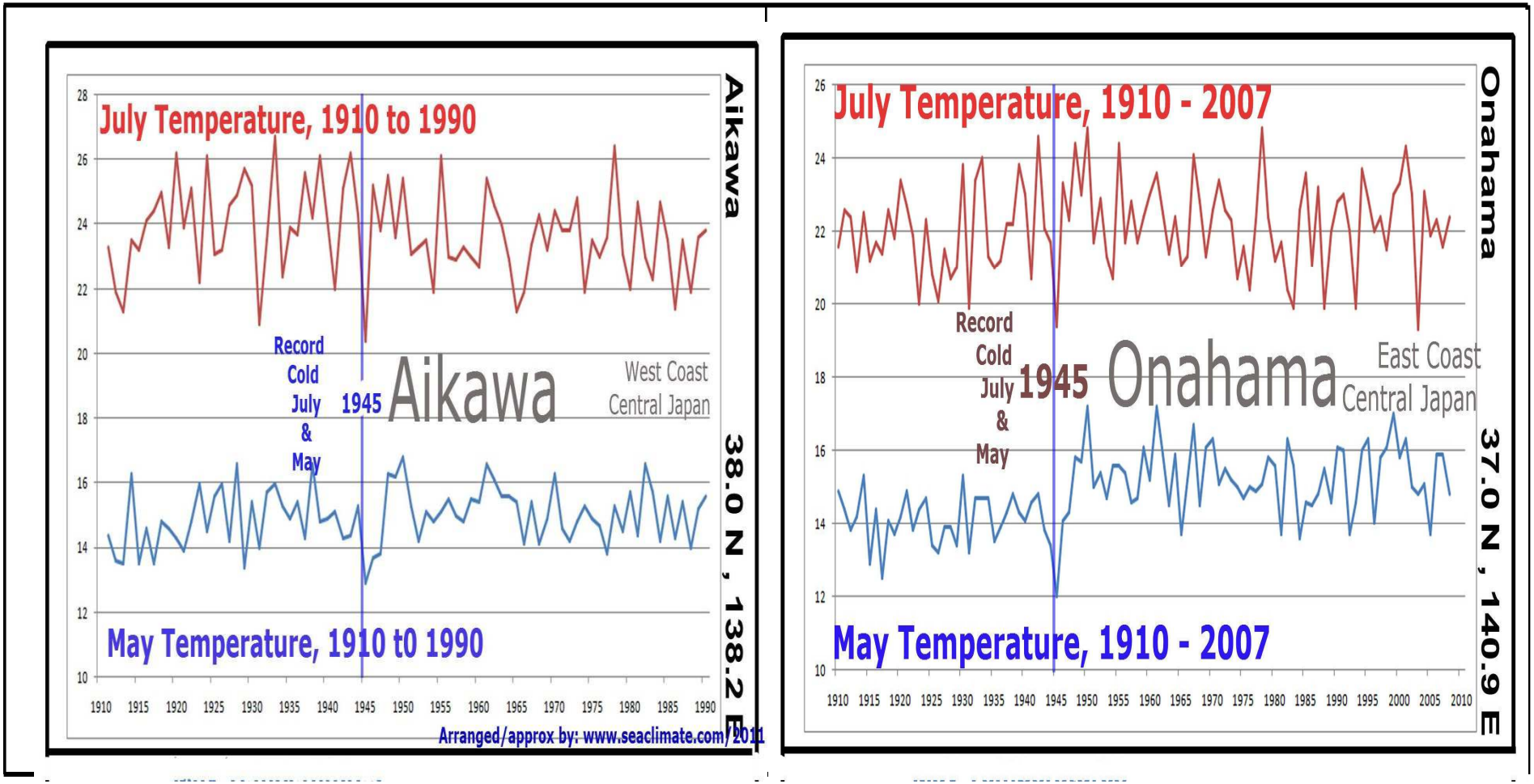
Figure: GISS_NASA; Annual Mean Temperatures;



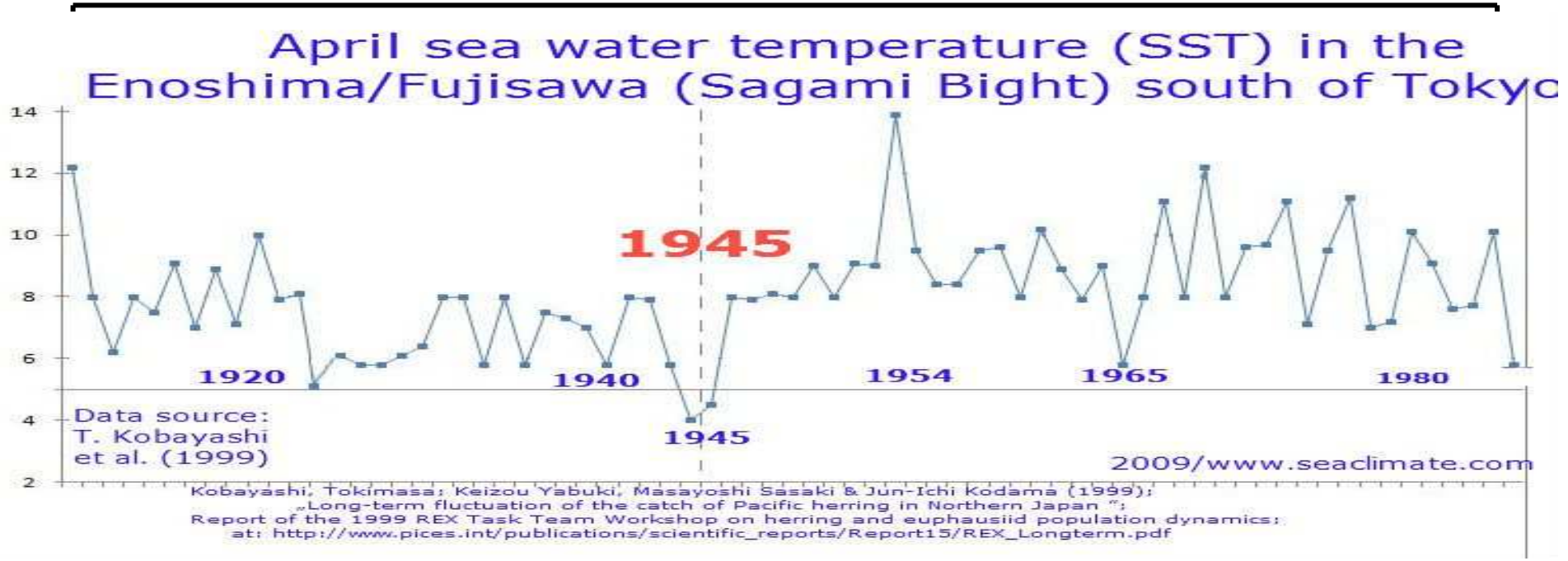
What caused the extreme winter at ONAHAMA?
Naval warfare is a compelling cause!



Even in May and July 1945 temperatures dropped to record low!



Another example: Sea water temperature for ‚April' south of Tokyo!



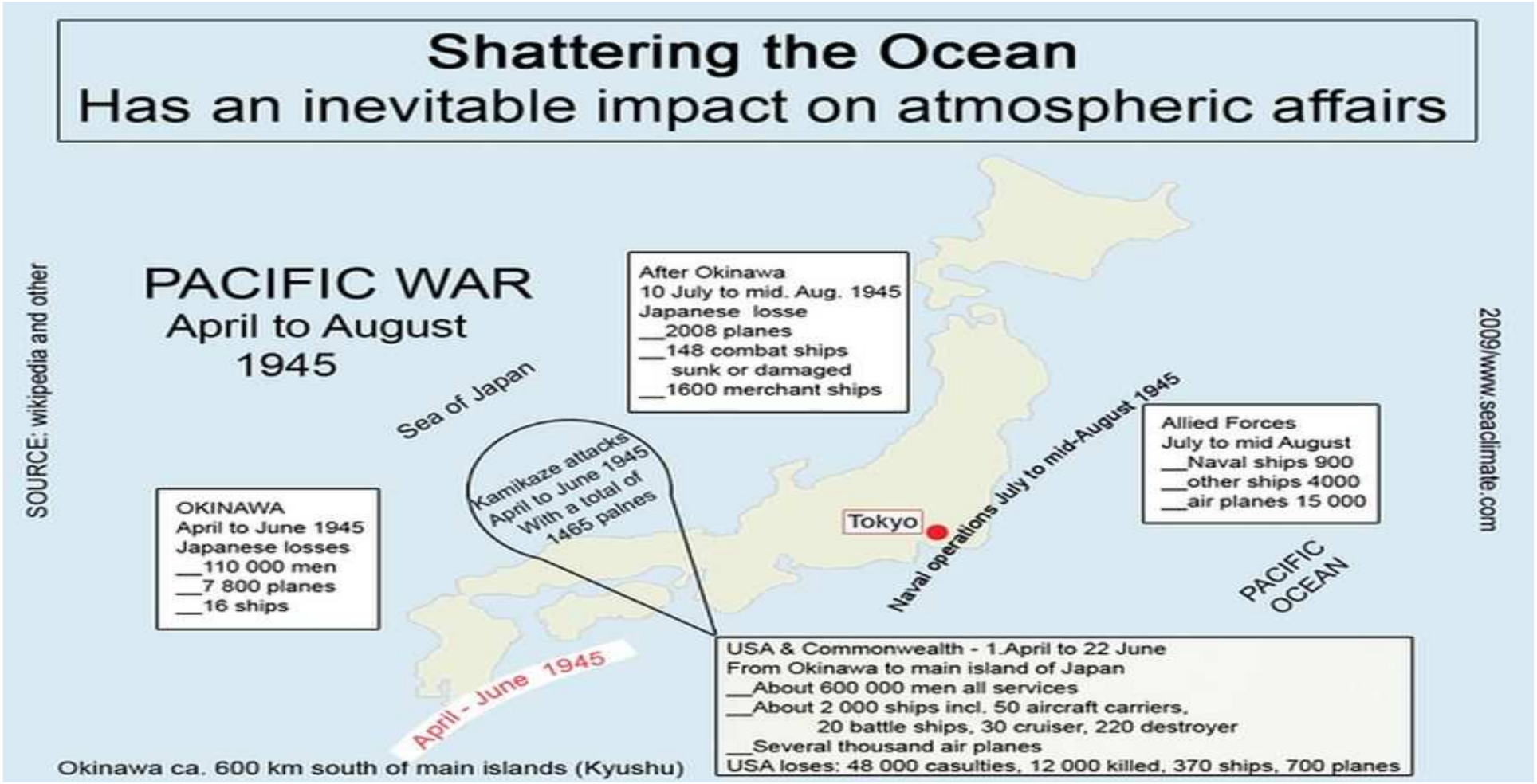
NOTE:

Access to historical SST data via internet is a mere coincident, although there will be – due to fishery research - plenty more.

It seems time that science collects und publishes them.

How much naval warfare is needed to shift marine structures and subsequently climate?

The final war months – April to August 1945



The Pacific War was fought in an extreme complex water body.

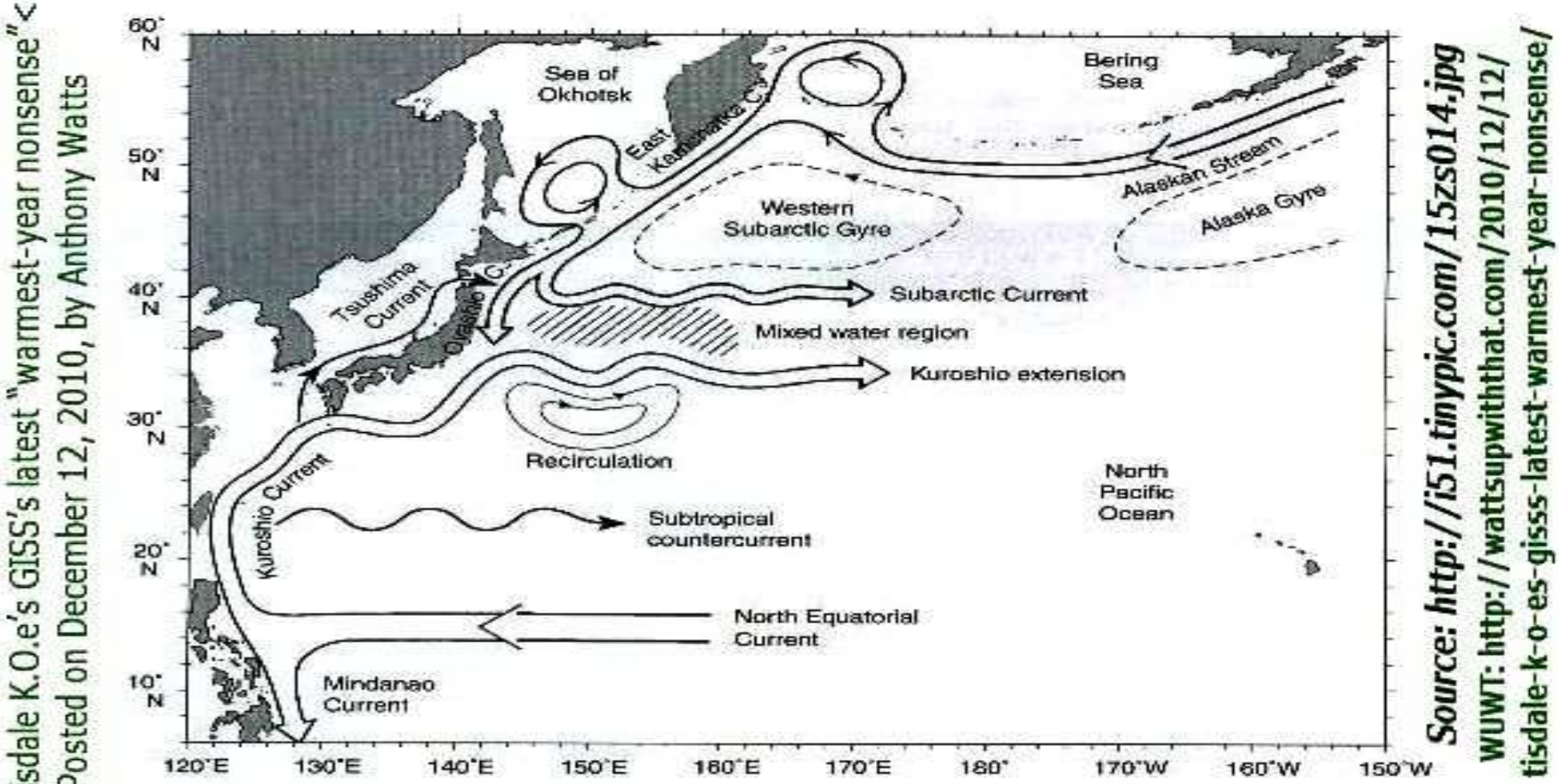


Figure 1 Schematic current patterns associated with the subtropical and suberctic gyres in the western North Pacific Ocean.

>Tisdale K.O.e's GISS's latest "warmest-year nonsense"< Posted on December 12, 2010, by Anthony Watts

Source: http://i51.tinypic.com/15zs014.jpg
WUWT: http://wattsupwiththat.com/2010/12/12/tisdale-k-o-es-giss-latest-warmest-year-nonsense/

Attacking the marine structure billions of times sshould not leave any trace in the Pacific Ocean?	10‘mio tons of sizeable ships	Many 10‘T air plane with fuel & equipment?	Billions exlosive Items?

Naval & Shipping Issue

Submarine (Japan >100 boats; US >200 boats) were used extensively during the Pacific War and a key contributor to the defeat of Japan.

•U.S. submarines were responsible for 55% of Japan's merchant marine losses (and about 30% of naval vessel); other Allied navies added to the toll.

•At peak time more than 40 US submarines were at sea.

•USA lost about 52 submarines, Japan even more.

•Japanese Shipping Losses about 3’000 (with 10’Mio/Ton; incl. 700 naval vessel);

•The U.S. ship losses were much less, but presumably more than 1’000 sizable ships

Arial Issue

JAPAN: he combined Japanese Air Forces produced 69,888 aircraft from January 1941 to August 1945. 30,447 were fighters. Aggregate losses during the course of the war were of the order of magnitude of 50,000 planes, of which less than 40 percent were combat losses.

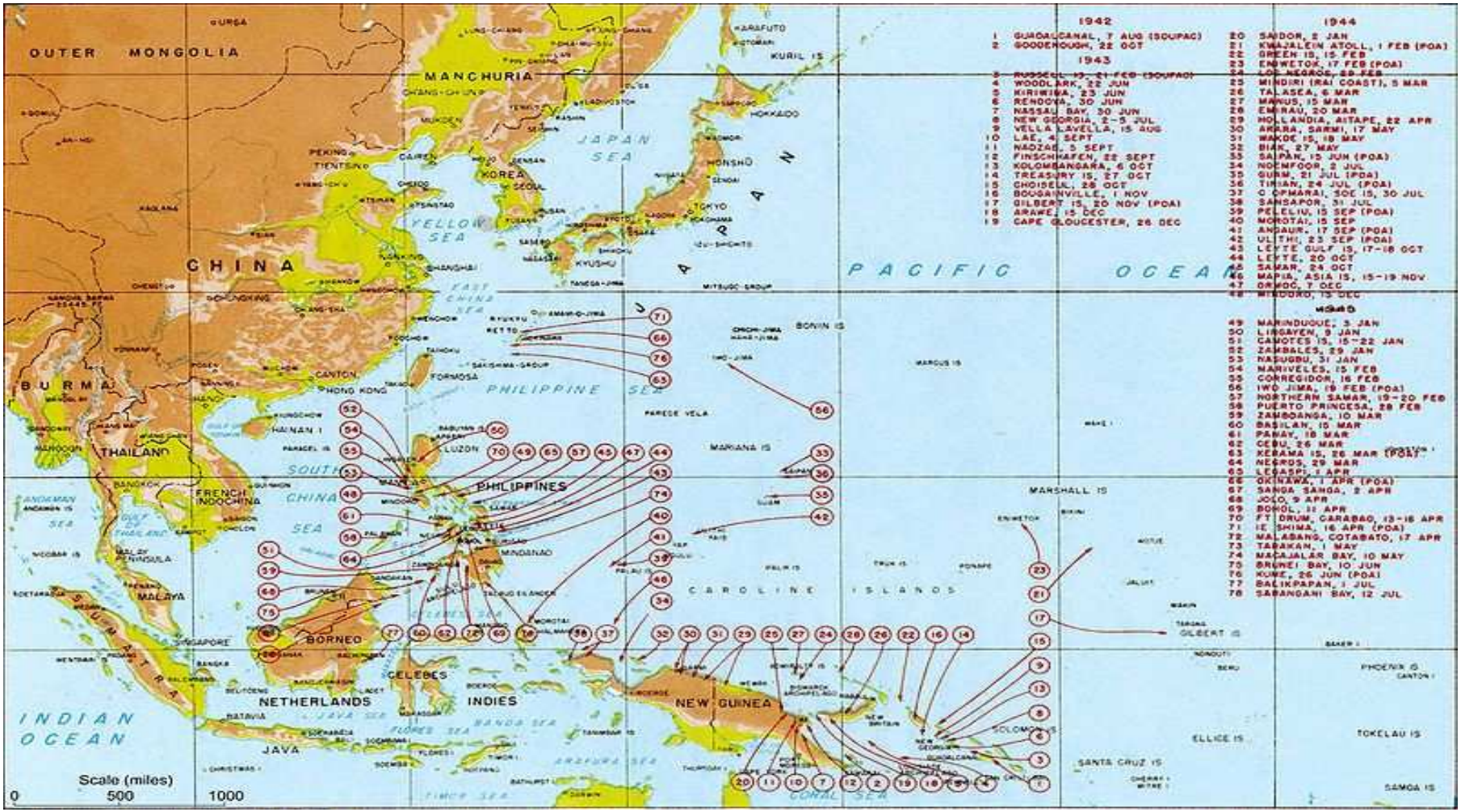
U.S.A.: Aggregate United States plane losses during the course of the Pacific war, not including training losses in the United States, were approximately 27,000 planes. Of these losses 8,700 were on combat missions. Of the combat losses over 60 percent all owed to antiaircraft fire.

Shell, sea mines, torpedoes, depth charges & bomb Issue

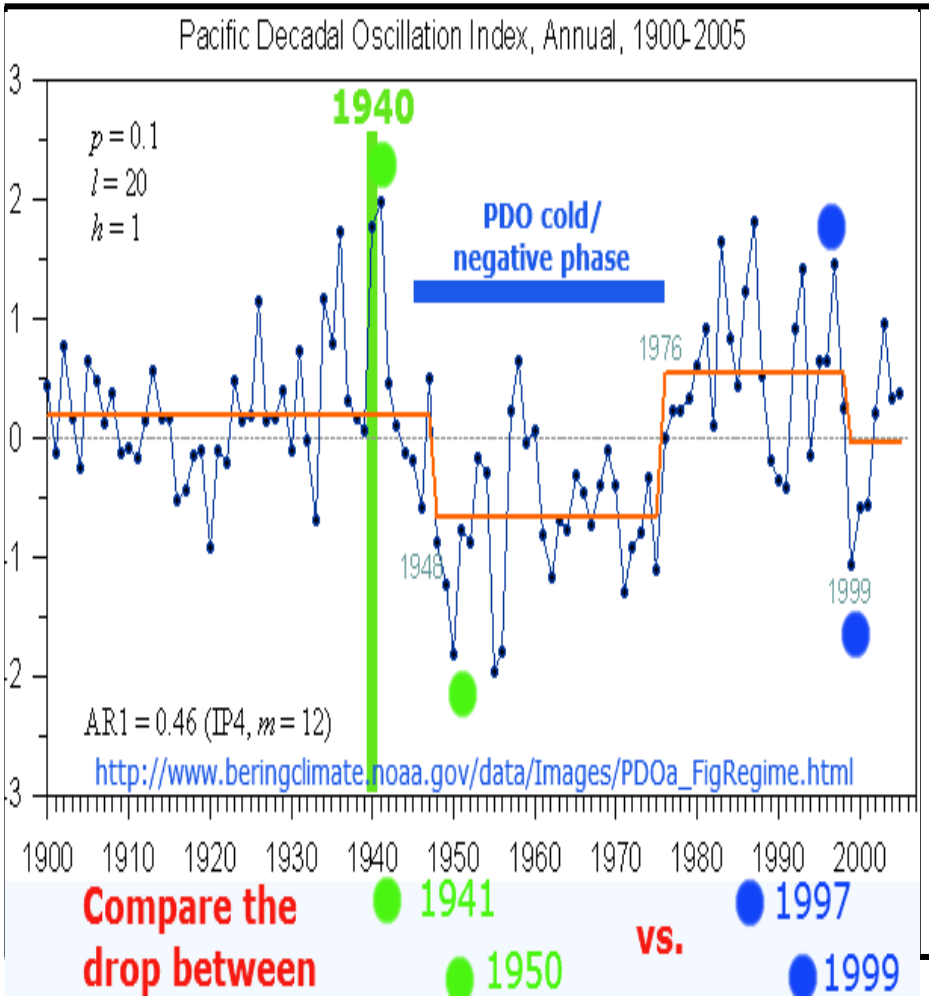
No figures could be found on the number of shells & torpedoes fired, and bombs and depth charges dropped, which fell in the sea, and exploded below the sea surface. The total tonnage of bombs by Allied planes in the Pacific war was 656,400. Torpedoes, sea mines and depth charges are presumably not included. The number of shells may succeed billions.

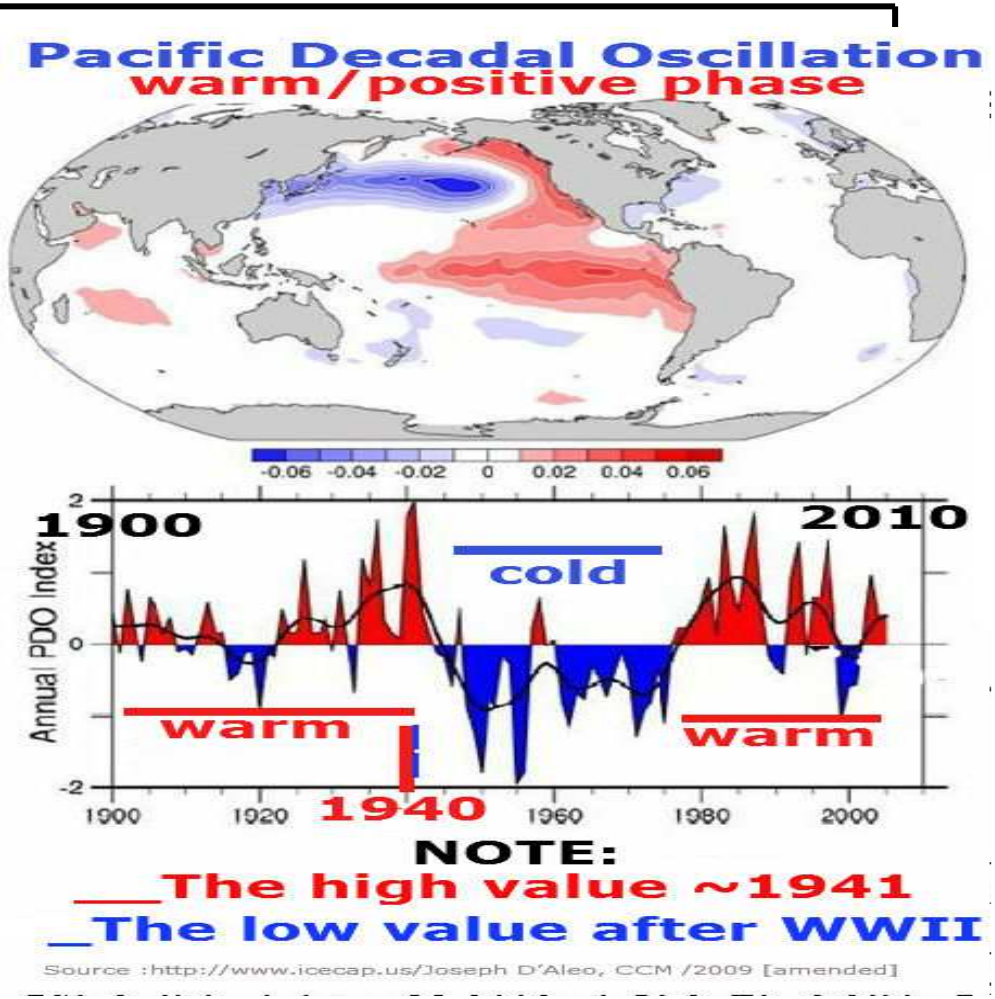
All figures are only very rough estimations and shall merily indicate a possible dimension, without any proof.

The war in the Pacific was a massive assault on the marine environment as well!



There is no evidence that four years of war in the Pacific are responsible for the POD shift 1942/46, but too many solid facts indicate that naval warfare contributed significantly!

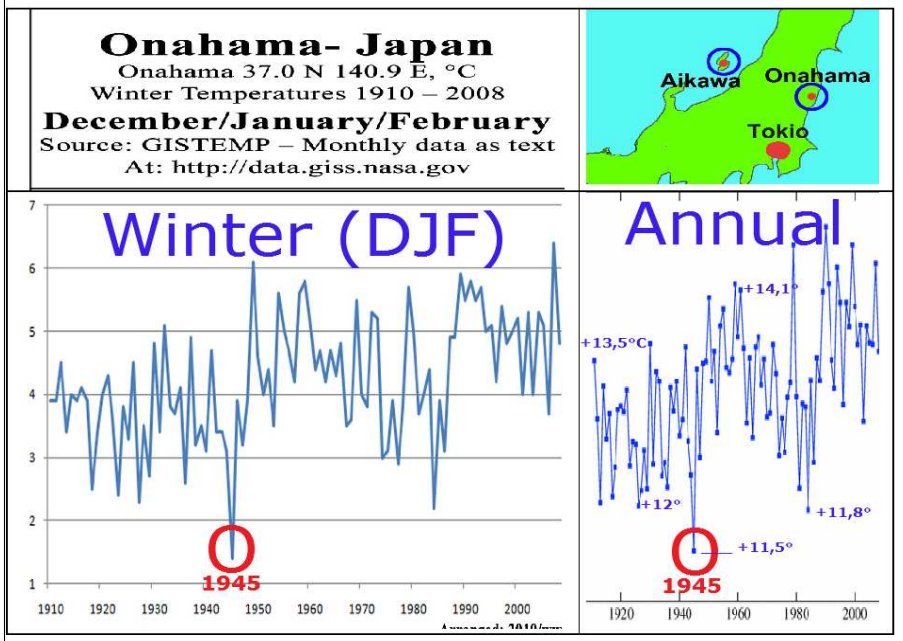


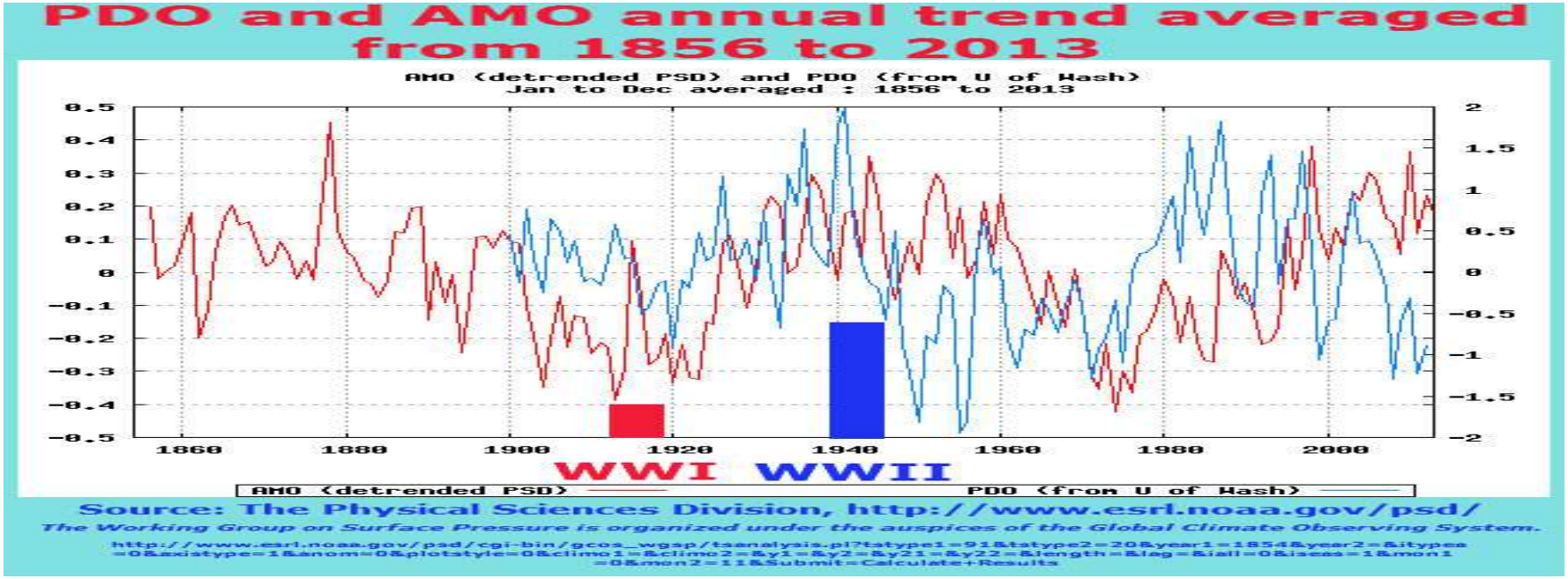


Not to know the reasons for the cold winter

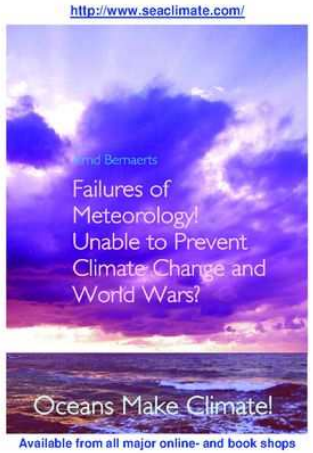
in Japan 1944/45,

is insufficient science, since it can evidently be linked to naval warfare.





Many thanks for your kind interest!

The lecture is based on the book:	**Failures of Meteorology! Unable to Prevent Climate Change and World Wars?** ***Oceans Make Climate!***
	Pages: 232, about 200 figures and images, 14 color pages. Book on Demand/BoD; ISBN 978-3-8448-1284-8
	More related lectures are published at: http://climate-ocean.com/