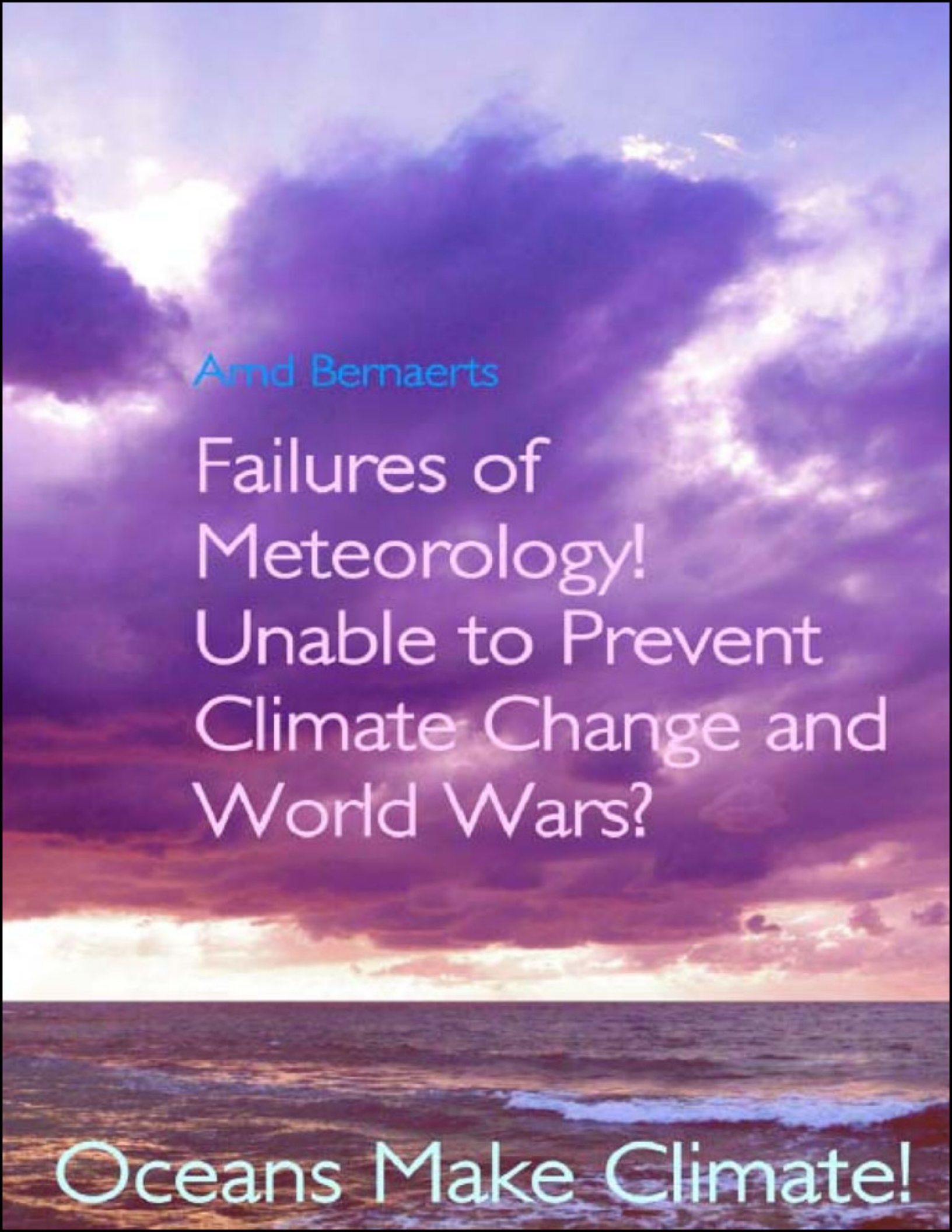
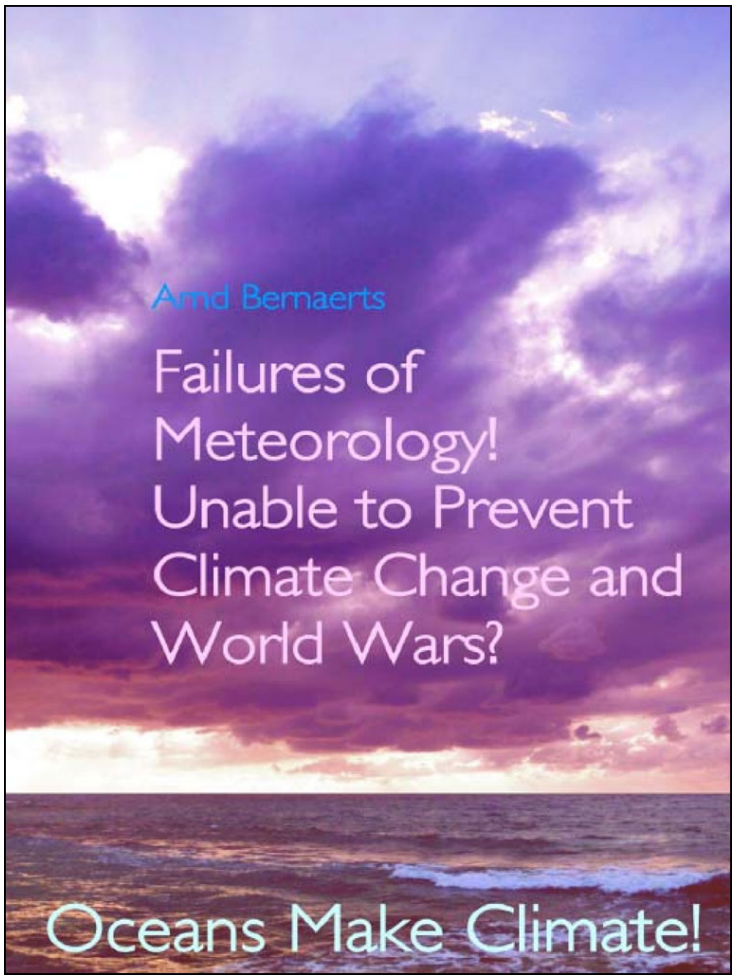

Arnd Bernaerts
Failures of Meteorology! Unable to Prevent Climate Change and World Wars?
Oceans Make Climate!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Failures of Meteorology! Unable to Prevent Climate Change and World Wars?

OCEANS MAKE CLIMATE!

Books on Demand

Foreword:

By Dieter E. Koop, Oceanographer.

To minimise the danger of anthropogenic global warming (AGW) by carbon dioxide emissions, international institutions require an investment of about 10 times the material cost of the entire World War II within the next few decades. The book deals with the “climate change” issue as well but from a completely different perspective, namely the threat of climatic change by human activities in the marine environment since sailing the seas with screw driven vessels during the last 150 years. The book proves that four months of activities at sea in autumn 1939 had been sufficient to generate the coldest winter in Europe since the Little Ice Age and that six years of global naval war were enough to contribute to the only global cooling period since the world got warmer since about 1850, which lasted from 1940 to the 1970th.

As oceanographer with a professional focus on North Sea and Baltic research, I felt competent enough to do the proof reading for this book. It was pure amazement to me. The ruthless Nazi regime dragged Europe into WWII, and a few months later Europe faced the coldest winter since about 1820. 70 years have passed and science has no idea of what had caused the extreme winter 1939/40. Even worse, there is no sign of interest in the matter although two further extreme winters, and a global cooling period of three decades followed. Even during peace time the huge shipping and fishing industry has the potential to influence the seasons and to contribute to global warming, which climatology has, to my knowledge, never investigated. Meteorology and oceanography should be dismayed that they failed to understand the climatic changes during two

world wars, and for not having coordinated their research better to avoid such horrible gaps in understanding the climatic change issue from an oceanographic perspective. This fascinating book is a huge contribution to improve the knowledge of the influence of human activity on climate.

Dr. Arnd Bernaerts deserves thanks. His research is of the finest, curious, innovative, thoughtful, competent, comprehensive, and dedicated. Maybe it needed an all-round man like him, a trainee on one of the last cargo tall sailing ships, ship master of a general cargo vessel, navigator in yacht cup competition, (where I first met him), and as a lawyer, advocate and consultant. His research ability stems from his doctorate in law, his book on the “UN Convention on the Law of the Sea”, and a number of essays. His motive is expressed on page 14 with reference to the “General Obligation” of article 192 in the Law of the Sea Convention: *"States have the obligation to protect and preserve the marine environment",* noting that::

> “This obligation has great importance for the atmosphere, weather and climate, because if mankind understands and protects the oceans, it would minimize the threat to humanity posed by anthropogenic climate change. If man fails on ocean matters, or understands too little, or too late, errors can never be corrected.”

Mankind should realize this and preserve life and nature. Maybe this book can open some ones eyes in this sense. Thanks to the author for pursuing this difficult subject by remarkable independence and looking across scientific disciplines. The book focuses on how man can influence the instable balance in the ocean and atmosphere by blind and unrestrained war or ocean uses. The book serves as a reminder that without the oceans in focus, climate research is likely to fail or head into disaster.

Dieter E. Koop, January 6th 2012

Acknowledgement:

Thanks to Dieter E. Koop, for the thorough proof reading and his foreword, and for mentioning our race sailing adventures some decades ago. Many other persons deserve being mentioned. But as the very foundation of my research on climate change matters is my book on the UN Convention on the Law of the Sea (UK/1988), which happened to be published when James Hansen claimed that carbon dioxide is the culprit of anthropogenic global warming in 1988, it would be a long list of persons and their home countries, e.g. Bulgaria, India, Kosovo, England and Germany, who provided IT assistance or proof reading.

Before naming at least two persons special my thanks go to C. Schroeder, who paved the way for lectures on the Law of the Sea and the climate change issue at a research institute in 1988, 1992 and 1997, and the publication of the corresponding papers. An outstanding support in proof reading I got from Klaus Zerrahn, and on IT matters from Angela Boartes (Timisoara, Romania). Since 2006 she prepared and managed several websites and processed the publication of books. Two years ago she organised the publication of my book on the arctic warming (1918-1940) in the USA and Germany. Without her and other persons invaluable help, my research and its presentation would have been much more difficult. Many thanks to all contributors for the kind support.

Dr. Arnd Bernaerts
January 2012

Note:
Updates, information and additional material at:

www.seaclimate.com
Home page: www.oceanclimate.de

Books printed and distributed outside Europe may not show the 14 full page Temperature Maps in color. Those readers are kindly requested to consult www.seaclimate.com.

Page finder to 14 temperature maps in color (TM)

Table of Contents

C2. Records, Records, Records – Introduction to the unexpected
a. In Focus # b. Temperature **#** c. More remarkable weather events # d. Conclusion

C3. War at sea 1939 - Facts and events
a. Introduction # b. The military strength in general # c. Total Naval war, and weather in opposition # d. Conclusion

C4. The sky cries because of the war? Dry, Rain, Cold!
a. Why talk about rain? An Introduction # b. Does war make rain? # c. The factor of rain prior to winter 1939/40 # d. Did the war show an effect in the U.S. in autumn 1939 and January 1940? # e. Natural variation? # f. Is it possible to establish a connection with the war? # g. The findings until now can be summarized as follows:

C5 Jet stream blocked by naval combat?
a. Air flow blocked – Understood? – An introduction # b. The first days and the cyclone in the German Bight # c. Blocking observed but not understood # d. Not competent enough to read the wind? # e. The whole winter season affected # f. How *R. Scherhag* rated December 1939 # g. An anthropogenic contribution to the preparation of a record winter

C6 The weather attacked in the Winter War: Russia vs. Finland
a. Overview –When Russia went west # b. Military overview, The New York Times reported # c. Weather summary # d. Winter War on land and in the air - Summary

C7. The evidence in the ice of the Baltic Sea
a. An Overview – The numerous aspects to discuss # b. The icing condition, start, intensity, and duration in a brief view # c. Assault at the Bay of Gdansk starts an extraordinary ice

season # d. Loss of heat by shells and anthropogenic forcing # e. From Kiel to Gdansk the Kriegsmarine churned the sea # f. The Scandinavian in action and the Kattegat # g. The Skagerrak on the edge # h. The German Bight and the sea ice # i. How the navies prevented early icing in the Gulf of Finland # j. Randomly excluded

C8 From the North Sea to the Atlantic

a. Could early questions have minimised the worst? # b. The naval war situation around the UK # c. Activities around southern England # d. Cooling the North Sea a matter to reckon with # e. War theater in the North Sea # f. The west wind aisle mutates to a cold corridor

C9. Finally on the first war winter

a. Factors & non-factors # b. From one autumn to the next # c. From low to heavy ice cover in the Baltic # d. The sudden end to a two decade increased warming # f. Summary

D. Winter 1940/41 a climatic research delight

a. Bad boys in navy blue and climate experts without a clou? # b. Meteorological Situation in Northern Europe # c. Did the Skagerrak play a special role? # d. How deep could naval warfare penetrate? # e. The sea ice winter 1940/41 # f. Summing up a winter of scientific delight

E. The War Winter 1941/42

E1. Did naval war stop Adolf Hitler at the gates of Moscow?

a. A "lightning war" (blitzkrieg) collapses in early December 1941 # b. An overview of Naval Battlefields and weather deviation # c. Did the winter commence early? # d. Curiosity or what happened at Malgoviks primary school in Lappland/Sweden? # e. Early sea ice? # f. What made the winter of 1941/42 so severe?

Everything comes from water.
Everything is maintained through water.
Ocean, give us your eternal power.

Drama: Faust II; J. W. v. Goethe (1749-1832)

“It might appear, therefore, as if the oceanic circulation and the distribution of temperature and salinity in the ocean are caused by the atmospheric processes, but such a conclusion would be
erroneous, because the energy that maintains the atmospheric circulation is to be greatly supplied by the oceans.”

Harald Ulrik Sverdrup (1888 – 1957)
"Oceanography for Meteorologists", New York 1942, page 223

A. A Guide to understand climate change

A1. Introduction to climate change and man's contribution

The Second World War stands for the criminal madness of the German Nazi government. Less known is their responsibility for the only climatic shift from warm to cold in an otherwise constantly warming world over the last 150 years. The three war winters of 1939/40, 1940/41 and 1941/42 mark the change. The regions that had been closest to intense naval war activities, Baltic and North Sea areas, immediately experienced the coldest winter in one 100 years. For this to happen, man needed only four months since commencing the Second World War (WWII) on September 1st 1939 not only during the first but also the second and third war winter. Europe's winters were back in the Little Ice Age. After Japan had attacked Pearl Harbor on December 7th 1941 the naval war became a global affair lasting until August 1945. In close conformity with the naval war in European seas, and globally subsequently, a pronounced world wide cooling took place, which lasted over three decades until about the mid 1970s.

Not one weather forecast had expected an exceptionally cold winter. Since the middle of the previous century the winters had gradually become milder. The Englishman *A.J. Drummond* expressed his astonishment in 1943: "The present century has been marked by such a wide-spread tendency toward mild winters that the 'old-fashioned winters', of which one has heard so much, seemed to have gone for ever". At the same time the Swede *G.H. Liljequist* ascertained that such a series of three consecutive cold winters in Stockholm had never been observed, while the German *M. Rodewald* (1948) wondered that the pronounced,

'secular heat wave' since the 19th century had been interrupted so suddenly by three consecutive severe winters. However, a connection with the war at sea had never been recognized. Neither the three mentioned experts, nor their colleagues, nor the ten thousand climatologists of following generations noted the connection. The biggest climatic change since the industrial revolution, its debut in the winter of 1939/40, and the subsequent three decades lasting cold period are still a mystery in climatology.

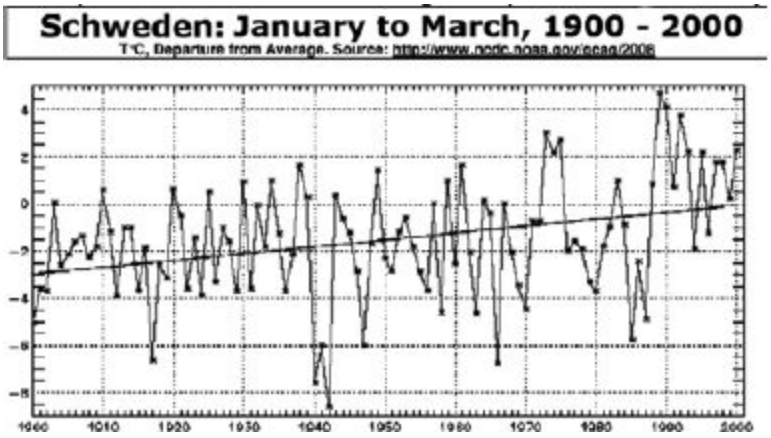


Fig.A1-1; Three consecutive extreme winters 1940-42 in Sweden

There are plenty of signs of a close timely correlation between the naval war and the three extreme winters. Many observations, whether concerning rain, wind, temperature, and the sea ice formed in the North Sea and the Baltic, indicate answers for its cause, like the fact that for the first time since 1883, the Baltic was fully covered by ice. Temperatures plunged very deep particularly in regions, which were covered by the most intense naval warfare. The "naval war effect" is clearly visible during the winter because the seas and coastal waters north of the English Channel exchange the heat they have stored during the summer season with the atmosphere. North of the Bay of Biscay the influence of the sun on winter weather in

Northern Europe is low, that of the ocean and seas comparably mighty.

Actually, the effect of warfare in the oceans on weather and climate should have been investigated and understood long ago. A thorough analysis of the effect of the two naval wars during WWI and WWII could have contributed important insights into manmade climate change. Available are not the meteorological data for the three extreme winters of 1939/40 to 1941/42 and the several years long naval warfare in the Atlantic and Pacific, but there are also numerous facts available for comparison with the First World War from 1914 to 1918 (WWI). It seems utterly unacceptable that science ignores observations that were made 70 years ago. Here are two examples:

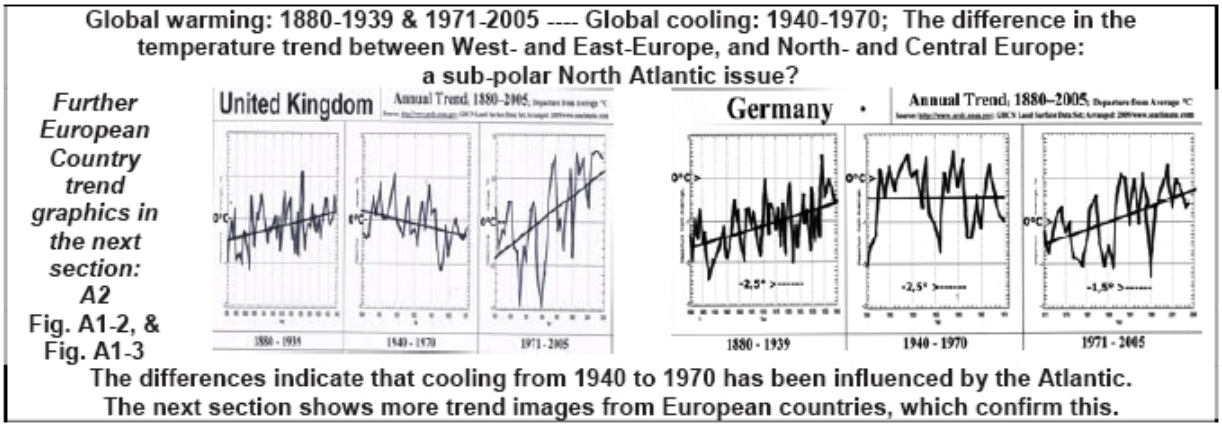
- __*Drummond* (1943): "Since the beginning of comparative observations in 1871, there have been only three consecutive winters (1939/1940, 1940/1941 and 1941/1942) that were as snowy as this, i.e. 1915/1916, 1916/1917 and 1917/1918. "
- __Oe*stman* (1941): "Very rarely are two severe ice winters directly followed one after the other - since 1870 when regular ice observations started in Sweden. Except for the last two winters, these are -1939/40 and 1940/41 the only other cases are 1915/16 and 1916/17."

How would *Mr. Oestman* have expressed his astonishment, if he had also written the next sea ice report for the Swedish weather service? Instead of that the already mentioned *G.H. Liljequist* who was in charge, noted that the third war winter 1941/42 was colder than the previous two winters, and the coldest in Stockholm since 1756. The reason is not too difficult to identify: The German invasion of the Soviet Union since June 22nd 1941, which included a seven month battle for supremacy in the eastern Baltic between the German Navy and the Soviet Baltic Fleet, until heavy sea ice

prevented any further naval activities by the end of January 1942.

Links between naval warfare and climatic deviations during WWII are abundantly available. Discussing human activities in the marine environment in conjunction with three extreme winters in Europe (1940-1942), and the commencement of global cooling (1940-1970) is not done to write a history of naval warfare, but does not only demonstrate that the oceans and seas are the key to understand the function of climate, but to show how quickly human activities cause a threat to weather and climatological systems. If a period of four months full of naval activities in autumn 1939 shows sufficient interrelations on its contribution to an extreme winter in Europe, what further evidence is needed to go for a painstaking analysis of the impact of two World wars on climatological changes? The general public and the international community can require from science that it is able to understand and explain the two most serious climatic changes that occurred 70 respectively 90 years ago, and to what extent they have had an anthropogenic component due to naval warfare during WWI and WWII. A positive answer would underline the book's subtitle: "Oceans make Climate", or that:

Climate is the continuation of ocean by other means.



A2. The experts who do not see a war

It is hard to believe! The experts from the department of meteorology have never taken into account the fact that a major war can change the weather pattern. To highlight the failure, the following consideration focuses on the opinion of ten experts concerning the reasons for the extreme war winters of 1939/40, 1940/41 and 1941/42. Seven of these experts were contemporary witnesses, the other three were born much later. One could assume that the list of a few witnesses is selective, but surprisingly enough it is not. Whether named or not[1], not anyone has said anything about the relevance of human activities in this matter. A link between war and weather was never investigated; in either naval war.

Although all recognised that these winters had been extremely exceptional, not even one of them raised the most obvious question, namely this one concerning the role war had on the weather. How can science work with such a big lack of curiosity? How can climatology claim that they understand ‘climatic changes’ if they do not even know the reason why weather and climate deviated at the onset of WWII. It happened under the eyes of modern science. The following presentation of views provides a fairly comprehensive picture of the negligence of science in the “war changed weather” issue. WWII ended 65 ago and science has no idea of what the war did to the weather. This is unacceptable.

a. Sensational observations at Kew Observatory

- ***Drummond, A. J., 1943, “Cold winters at Kew Observatory, 1783-1942”***

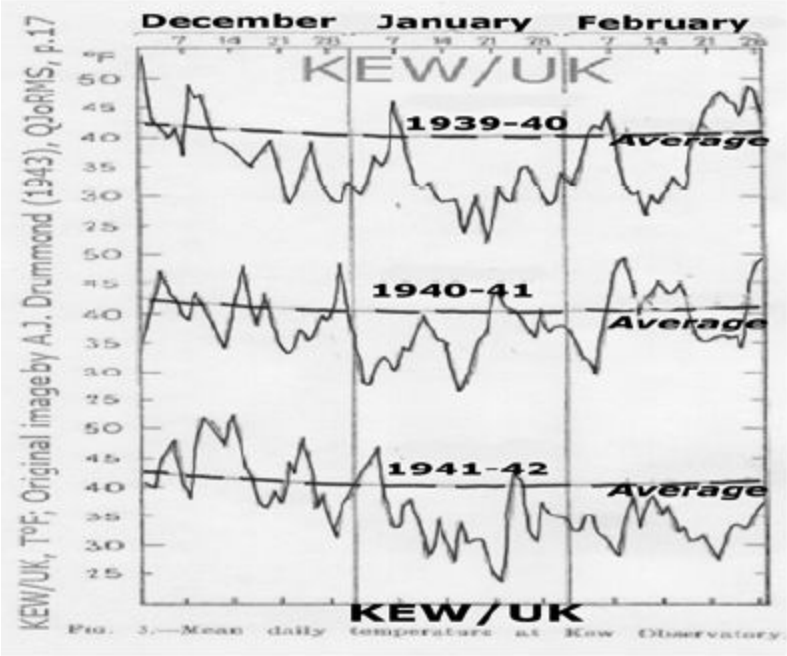


Fig.A2-1; Kew Observatory/UK.
The first three WWII winters.

If we were to choose a sentence that was published and that alone should have forced legions of scientists into motion and kept them busy until they had convincingly established the reasons and conditions of why it had happened, we could choose this one: *"Since comparable records began in 1871, the only other three successive winters with as much snow as the recent ones were those during the last war, namely 1915/16, 1916/17 and 1917/18, when snow fell on 23%, 48% and 23% of the days, respectively".* (See also: *Lewis*, 1943[2]) Or this statement:

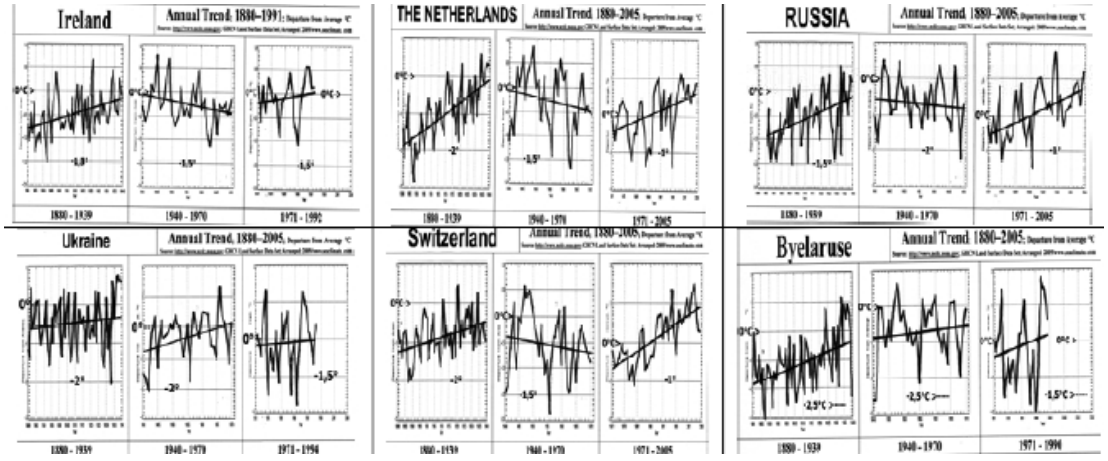
> *"The present century has been marked by such a widespread tendency towards mild winters that the 'old-fashioned winters', of which one had heard so much, seemed to have gone for ever. The sudden arrival at the end of 1939 of what was to be the beginning of a series of cold winters was therefore all the more surprising. Never since the winters of 1878/79, 1879/80 and 1880/81 have there been three*

in succession so severe as those of 1939/40, 1940/41 and 1941/42."

What in the world prevented *Drummond* to link his observation to naval warfare? Also his colleagues were and still are silent, although his essay offers many more interesting observations, which *Sir George Simpson* made comments on the same issue (1943, Discussion, p.147f):

> "I feel this paper is a unique source of information for future climatologists and I am certain that for every hour *Mr. Drummond* spent on his work other people will spend a great many more in making use of his data."

The honorable *Sir George Simpson* would turn in his grave if he knew how much he had miscalculated. Not one of the "future climatologists" has made use of *Drummond's* observation. So it up to this work to present at least the most important observations in the following chapters.



T°C differences between West to East (1880-2005); Fig. A2-2/4 (above); Fig. A2-25/7 (below)

b. Stockholm - Bingo! Three-winter record!

- ***Liljequist, Gösta H., 1942, "Isvintern 1941/42"***

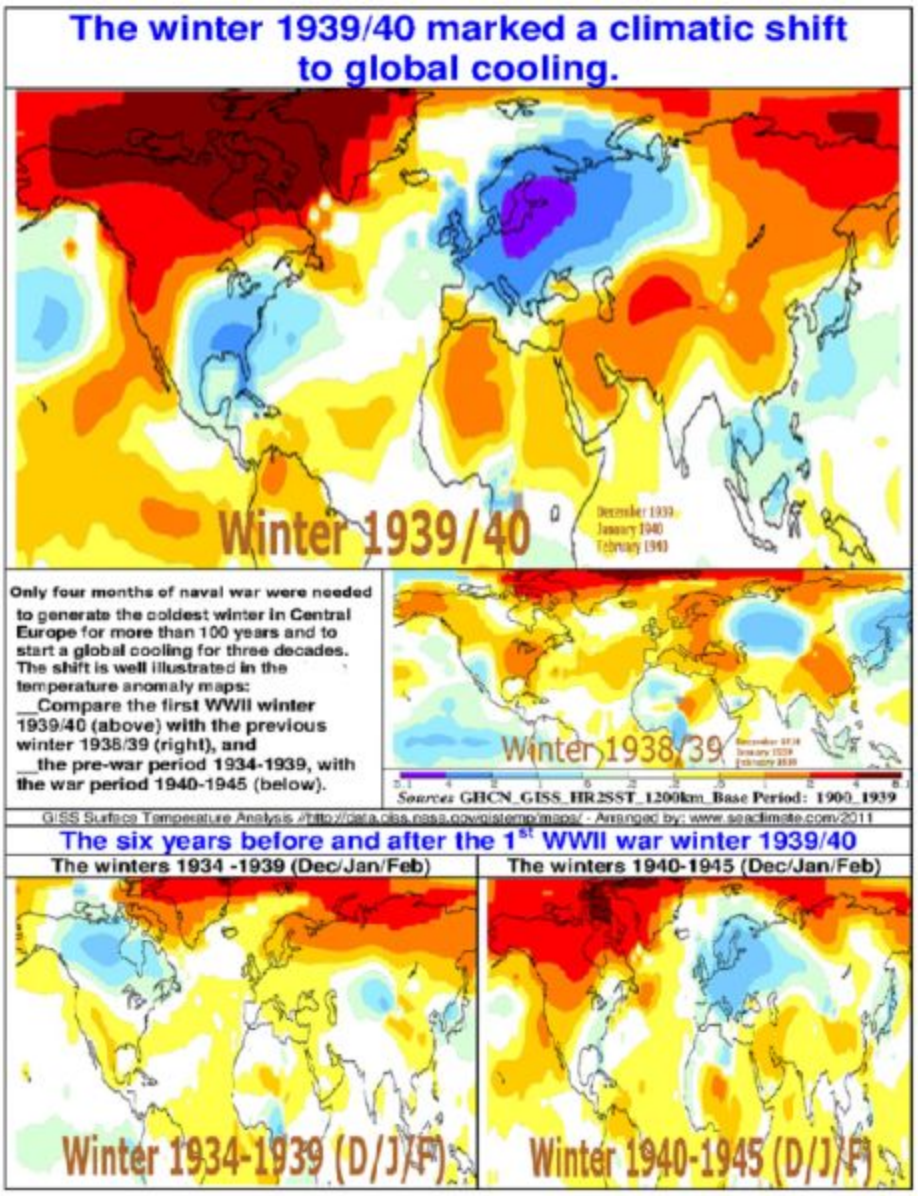
The Swedish author *Liljequist* was one of the few who analysed the early three extreme winters in WWII. He was

certainly not the only one who recognized the unusual nature of the three cold winters in a row. According to his studies such a situation had never been seen before. In the Swedish Ice report of 1941/42, he wrote:

> *"After the two severe winters 1939/40 and 1940/41 and the difficulties for seafaring activities and the fuel supplies in the country, they had probably been waiting and hoping that the winter of 1941-42 would be a recurrence of a prior mild winter. Instead, this winter was one of the toughest, if not the toughest of all winters, in the past 200 years. "*

A few months later he published a very detailed analysis on “The severity of the winters at Stockholm 1757–1942” (*Liljequist, 1943*), with results any real scientist would investigate until he thoroughly understands the reasons and circumstances.

Surprisingly enough *Liljequist* never considered the cause of very cold winters in a row. Who else had been closer to the naval war scene in the Baltic than he? Nevertheless, his papers proved to be very helpful for my investigation. They gave some sort of support circling around the naval war thesis and encouraged me to search for convincing explanations and evidence.



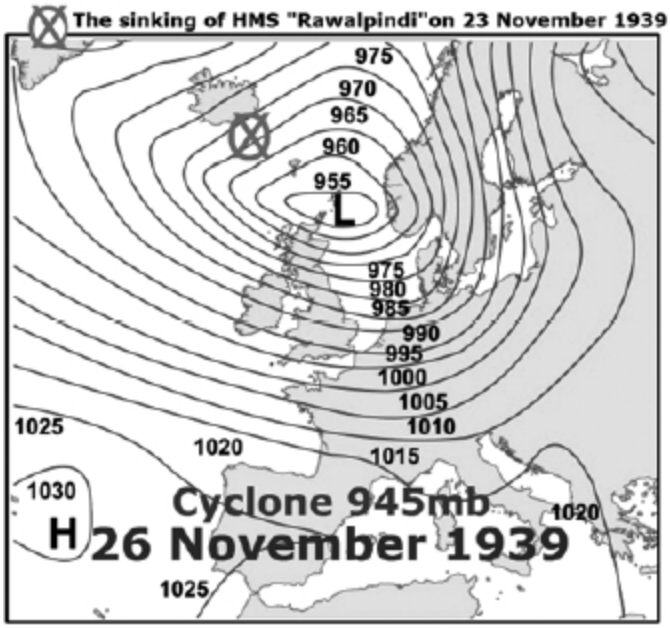
Temperature map 1 (TM1); Fig. A2-8; online: www.seaclimate.com

c. At the Centre of Marine Meteorology, but….?

- ***Rodewald, Martin, 1948, "Das Zustandekommen der strengen europäischen Winter"***
  (The realisation of severe European winters)

Only after WWII *M. Rodewald*, reflected on weather conditions during the war, some of which he had analysed as a forecaster of the German weather service SEEWARTE (Marine Weather Service) in Hamburg, and he was responsible for a number of daily weather analyses during the war months in 1939. His paper mentions that a series of cold winters occurred from 1780 to 1859 with about 4 severe winters in every decade, with only two cold winters, 1881 and 1929, during the 80 years since 1860, with the further explanation:

> *"Beginning in the previous century , a 'secular heat wave' made itself felt over most of the Earth, we noticed this especially in the increasing mildness of the winters, which 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."*



A2-9

Rodewald's synopsis clearly stresses that something extraordinary had happened, but that is all, which is worth reading, if one is looking for reasons. Although he had been at the center of the weather service in autumn 1939 he did not investigate one of the 'weather deviations' during the initial months of WWII, e.g. the weak cyclone activity over Europe or the shift of wind from SW to the NE sector. Another example is the 950mb low pressure cyclone over the Orkney Islands on November 26 1939. He was the responsible analyst but did not ask whether that might have had something to do with the first naval battle. On November 23rd the available Royal Navy ships in the sea area between Iceland and Scotland were deployed to hunt down two German battleships and their escorts that had sunk the auxiliary cruiser "Rawalpindi" south-east of Island in an earlier encounter. During this action the air pressure over Iceland dropped fast and a short time later wind force increased to Beaufort 12. Neither this nor any other of very numerous weather incidents *Rodewald* picked up for consideration of an impact of war on weather and climate.

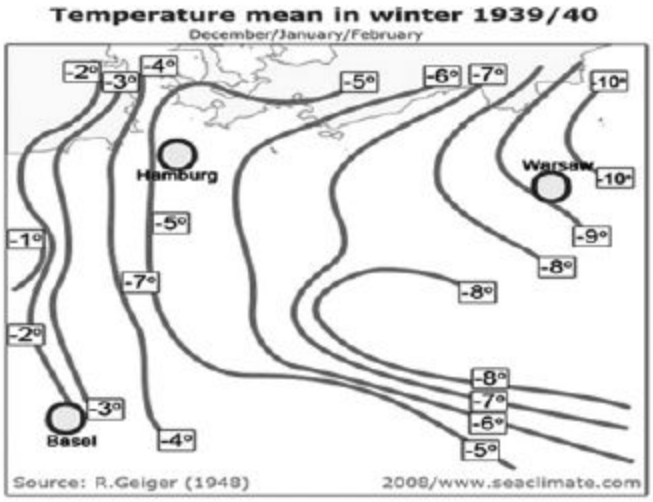
For an expert contemporary witness with a specialisation in marine meteorology that was terribly short-sighted.

d. Cold and Special - Winter 1939/40

- ***Geiger, R., 1948, „Die meteorologischen Bedingungen des harten Winters 1939/40 (The meteorological conditions in the harsh winter 1939/40)***

This professor from Eberswalde, a small city about 40km north-east of Berlin, assessed the winter of 1939/40 immediately, but because of his later enlistment in the navy, he could only publish his findings after the war. He mentioned the need to analyse the first war winter in conjunction with those of 1940/41, 1941/42 and 1946/47 as well, but he never did.

The paper is confined to an analysis concerning the condition of Germany and Central Europe and the special features of the winter 1939/40 that distinguishes itself from the previous cold winters, as it was the coldest winter for the region of Hanover, Berlin, Prague, Warsaw and the southern Baltic in 110 years. The severity of this winter was greater in North Germany than towards the south. The low-land south of the Baltic received the mass of cold air from the Finland-Russian region. While previous extreme winters had been particularly cold in January (1892/93) or in



A2-10: Central Europe; mean T°C Dec/Jan/Feb 1939/40

February (1928/29), the temperature level of the first war winter was extremely low during the whole winter, in Northern Germany having six degrees below mean (Fig. A2-10). *Geiger* notes that a deviation of 6°C for a month is unusual, *"but for an entire winter it is monstrous".*

For *R. Geiger* it could not have been too difficult to realise that the location and the duration of cold had been particularly severe over the German Bight, Denmark and the Baltic, where enormous naval activities (including the training of naval crews) took place. Maybe the professor had only few opportunities to observe the weather, while serving on a submarine.

e. The biggest forecasting flop ever

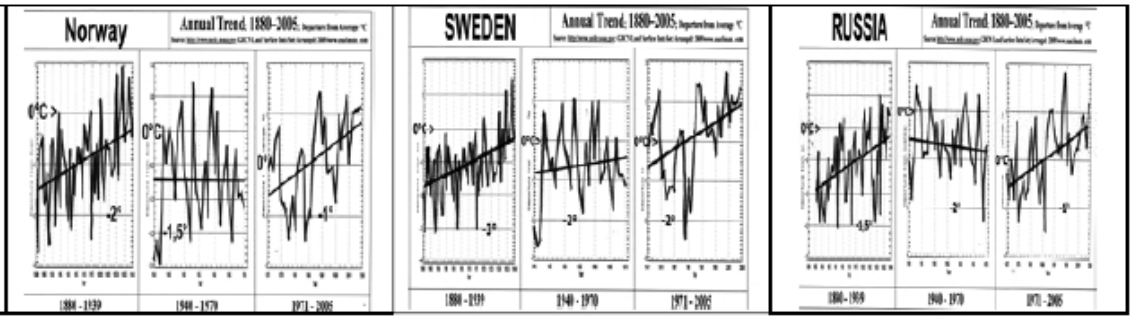
- ***Baur, Franz (without a reference paper concerning the war winters)***

He wouldn't be mentioned if it weren't for two fundamental failures. One is official and on record. In my opinion, it is the fact that he did not search for the reason why his prediction failed. He was a trained scientist, with a doctorate in natural

science. He was named the father of all weathermen as he was the one who developed a novel ten-day weather forecasting. He made himself known internationally with a paper on the correlation in meteorology which appeared in 1930 and with one on the significance of the stratosphere[3]. His name is *Franz Baur* (1887-1977).

Nevertheless, he deserves the top spot in this list of experts. *Baur* advised Adolf Hitler that the winter 1941/1942 would be mild. It proved a tremendous mistake. Since November 1941 the weather was the coldest for a hundred years. These conditions prevented the German army, as planned, to reach Moscow before the end of 1941. This magnificent blunder was a blessing for humanity, because it marked the beginning of the end of the Third Reich. It also shows how little meteorology understood about their discipline, at least they were entirely unable to draw possible conclusions from the two previous cold winters. Naval war had already contributed to the previous two cold winters! During autumn 1941 heavy fighting in the Baltic caused the weather to respond, but *Franz Baur* and his colleagues never asked why. *Franz Baur* in the first place, should have been most ambitious to find out why his forecast failed so colossally, as a devoted scientist would have done. But he did not and failed a second time.

Fig. A2-11/13



f. Describing winter weather – without searching for causes

- ***Neumann, J., H. Flohn, 1987, Great Historical Events That Were Significantly Affected by the Weather:***

THE NEW YORK TIMES, TUESDAY, JANUARY 6, 1942.

SOVIET GAINS IMPERIL NAZIS BEFORE MOSCOW

Some 100,000 Axis troops in the region about Mozhaisk (2) were believed to be threatened with encirclement as one Russian drive approached Rzhev (1) from Sharitza while another swept through Bielev and Kozelsk (3), increasing the menace developed by the prior capture of Borovsk, southeast of Mozhaisk. The solid line indicates yesterday's positions. The broken line approximates the Germans' deepest penetration. The dotted line at left shows last-ditch defense limit reportedly laid down by Hitler.

RUSSIAN MASTERY OVER NAZIS IS SEEN

Soviet General Declares Test of Battle Proves Inferiority of German Machine

LOSS OF 'BEST MEN' VITAL

Turn in Tide Laid to Inability of Germans to Cope With Sudden, Early Winter

By RALPH PARKER

Special Cable to THE NEW YORK TIMES.

KUIBYSHEV, Russia, Jan. 5—General Golubeff, whom the Council of the Supreme Soviet has honored as one of the most distinguished defenders of Moscow, writing in the government newspaper Izvestia today, says:

"We now know how to fight our treacherous, evil foe. Our military technique has shown its fine qualities, and its perfection in tank, artillery and machine-gun warfare is noticeably superior to the enemy's."

Admitting that the Germans were giving fine resistance, General Golubeff adds that they must be suffering from the loss of their best cadres of officers and men.

"They know the charm of right," he declares. "Our task is not to let them hold their lines. Though the battle begins with an artillery barrage, it ends with the tank and the bayonet."

The Russian advance is proceeding with undiminished vigor. General Ivan Boldin, who entered Kaluga with his troops, announced that the Germans had been driven back in some places twenty-five to thirty miles from the city. From Maloyaroslavets the Germans are retreating at three times the pace with which they advanced in the Leningrad sector. Soviet Guard units recovered thirty villages and 300 square miles of territory in a five-day counter-attack, led by Major Gen. Feduninsky, after a German drive had been stopped.

The cold, the terrible guerrilla low-flying attacks by Soviet aviation and increased guerrilla activities have prevented the bringing up of sufficient reserves to relieve men already fully extended by the fiercest surges that had taken the Germans to the very outskirts stations of Moscow.

December was a bad month for flying and air activity was limited to attacks on highways and this was particularly advantageous to the advancing forces. Flying conditions now are becoming more stable and until the thaw makes airfields without runways difficult, there probably will be an increase in air activity.

Pressure against German-held Mozhaisk is being maintained from north and south as General Gregory Zhukoff's armies enter the second month of their energetic counter-offensive. During the first month the Germans were completely cleared from the Tula Province, while the area held in the Moscow Province also is steadily diminished. Apart from their military significance, these gains are doing much to relieve Moscow's food situation.

The Germans' failure to exploit the favorable positions they held late in November is attributable not to any error of dispositions, but to the narrow margin of safety allowed in supply questions. The autumn mud the Germans negotiated with considerable success, using a great number of horses. But the intense and unexpected cold spell of early December seems to have caught them off guard.

Last paragraph: **The German' failure to exploit the favorable positions they held late in November 1941 is attributable not to any error of dispositions, but to the narrow margin of safety allowed in supply questions. The Autumn mud the Germans negotiated with considerable success, using a great number of horses.. But the intense and unexpected cold spell of early December seems to have caught them off guard.**

Fig. A2-14, NYT, Jan. 6 1939: "Russian 'Mastery over Nazis is seen'"

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For any armchair strategist, this is a must-read paper on the insufficient weather forecasting prior and during the German ambush on Russia in the second half of 1941. The story fascinates many as the Axis troops faced a challenge from 'General Frost' at a magnitude not recorded for over more

than 100 years, or even 200 years, depending on the method of selection and interpreting. Let us be blunt! The mere presentation of historical facts made by two outstanding meteorologists more than 40 years after the weather had run amok seems to have little to do with science. Actually, the co-author *H. Flohn* reports that he was directly involved in forecasting and that he prepared an investigation on the winter climate in the western USSR (see Ref.: p.625) in June 1941 which was based on the series of data from St. Petersburg since 1743. He further mentions that only a few weeks later his department realised that the actually observed "flow of cold polar air masses to Northern Europe" was like those conditions prevailing in the cold winter of 1939-40 *"and which were, in fact, responsible for the harshness of that winter".*

The paper was presented long after the war had ended. There had been plenty of time to search for the reason why something extraordinary had happened in Northern Europe three times in succession during the war and the extensive naval activities. Instead, the paper's introduction already indicates that nothing significant was to be expected:

> *"Introduction: A study of the meteorological aspects of the war between Germany and the Soviet Union (USSR) for the autumn of 1941 and the winter of 1941-1942 will be presented, using mostly unpublished information on long- and medium-range weather forecasts and German climatological studies that were prepared either for the attack on the USSR or in the course of the war proper. The information that the authors have on the German "side" is far more detailed than that we have for the Soviet side. And, although, as far as forecasts go, primary interest is in long-and medium-range predictions, mention will be made of a few short-range forecasts made by Soviet meteorologists for some particularly important events of operations. Special attention will be devoted to the severe 1941-42*