WWI warms up Spitsbergen? (5-13)

A Big Warming started 1918

In a separate paper it was concluded that WWI was not necessarily 'neutral' concerning the weather. Particularly Britain, surrounded by naval warfare over four years, showed strong indication that its weather had been influenced by numerous military activities at sea as far as temperatures and snowfall were concerned. Temporary weather modification seemed to be evident.

This paper shall go beyond the question of weather modification. This paper further proposes to look for clues that may explain why a sudden, extreme and lasting warming occurred in the high North of the North Atlantic, as recorded at Spitsbergen since 1918. This 'Severe Warming' in the North led to the first significant climatic change during the 20th century, lasting for twenty years until the winter of 1939/40. The second dramatic climatic change during the last century started 1939/1942. The Severe Warming at Spitsbergen 1918 and the continuation thereof must have a cause. There was nothing around Spitsbergen, in the East, the North and in the West, that could have initiated such a sudden rise in temperatures at Spitsbergen. The only pathway to receive temperature-generating masses was the ocean water coming from the South, via the Spitsbergen Current and the Norwegian Current, but at the beginning of these currents lie European coastal waters.

These waters around the Isles of Britain, composed mainly of the warm Atlantic Gulf Current, had been the principal sea battlefields since World War I had started in August 1914.

The following presentation shall provide a basic idea of the forces and destruction that had been unleashed over a relatively short period of time. The forces had been so huge that one can go on saying: No drop of water of

the Western Approach (Ireland, English Atlantic coast), the English Channel, and the North Sea from Dover to Shetland Island had been left unturned. This water from the battlefield eventually flowed northwards with the currents. The composition and temperature structure of the seawater that arrived in the North was no longer 'natural'. Considerable parts of the water had flowed into the Arctic Basin; other parts may have circled in the Northern Atlantic (Norwegian Sea) for many years. This section provides the necessary information on how extensively the war machinery interfered with ocean and seas, water and the current system. As no other reason has ever been convincingly named for the sudden warming at Spitsbergen in 1918, and as the warming remained stable for two decades, the water at sea in Western Europe as the basic cause for this warming is an extremely plausible explanation.

Structure of the paper

Although WWI lasted for four years, the war at sea went into full gear only in autumn 1916. The Germans had recognised the power of the U-boat as the most effective naval combat vessel. Both the British and the Germans realised the need and equipped themselves for sea mine warfare. The British also returned to the 19th century concept of a convoy system and had a newly developed anti-submarine technique at hand, viz. the depth charges. The war reached its highest stage in 1918, when a huge sea mine barrage was laid at the northern entrance of the North Sea.

To meet the objectives of this paper, relevant naval information and features will be provided under the following two sections:

- The period from 1914 – 1916 will give some general impressions on the situation.
- The period from 1917 to the end of the war in November 1918 will particularly focus on the enormous destruction to man, materials and the radical turning about of the seas by the war at sea.

A later chapter will deal with sea mines and the Northern Barrage.

This paper is not a historical naval warfare account, nor does it aim at being complete. Further facts should be obtained elsewhere by interested parties.

The war period 1914 – 1916

Weather protects impertinent attacker

German battle cruiser bombards North Yorkshire's coast, 16 December 1914: The story is about weather-making by naval forces in combat missions at sea and is taken from the book 'Swept Channels'[1]. The narrative tells the story of a German battle-cruiser bombarding Hartlepool, that had a battery of guns, and Whitby and Scarborough, that had not, shortly after daylight on December 16, 1914. That left 120 people killed, and over 400 wounded. A German Communiqué short time later reports about "parts of our naval forces", but does not name the vessels involved. It was claimed that one English cruiser was destroyed, others damaged[2]. Further details are given below:

> "The whole story is told by Mr. Winston Churchill in the *World Crises, 1911-1914, Vol. I, p. 467.* Squadrons and flotillas were moved to deal with the expected raid, and these forces actually made contact with the enemy during their retreat and opened fire. At one point the British and German battle-cruiser forces were only twenty-five miles apart, and were still closing in on each other. Further seaward there was a powerful battle squadron under the command of Sir George Warrender. The action was imminent, and it could only have one result.
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> Then, as it so often had happened before, the weather supervened. The wind sprang up and the sea started to run high. The North Sea mist came down until the horizon became blotted out in a curtain of thin vapour. The weather gradually thickened, the visibility dropping from 7,000 to 5,000 yards, then to 3,000. In the driving rain-squalls the area of vision was bounded by a circle whose radius was sometimes less than a mile.
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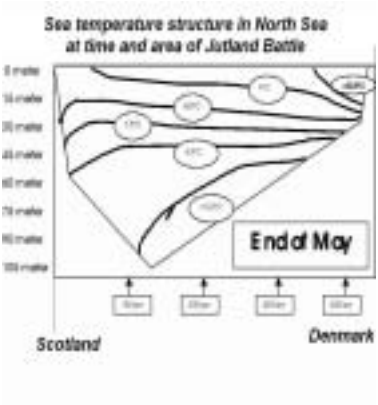
> Between fifteen and twenty heavy ships, and a number of light cruisers and destroyers, all steaming at high speed, were groping for each other within a space of about sixty square miles. Their wireless signals could be overheard in Whitehall, where their positions were constantly plotted on the large chart in the War Room at the Admiralty. It was like a nerve-racking game of Blind Man's Buff played in the dark, with huge ships instead of children – and the enemy escaped."

REMARK: The sea area mentioned is off the coast between the lighthouse Flamborough Head and Newcastle. In a short distance from the coast the water depth reaches 60 metres and more. In December the means temperature of the water body is almost homogeneous at about 8°C.

[1] Taffrail, p.92. [2] Piekalkiewicz, p.138.

The surface layer may already have been considerably cold. Possibly a number of four dozen big ships moving fast around and shelling at each other, is as effective as the spoon in the hot soup cup, stirring nervously. Encounters, as at Hartlepool in December are the way naval forces can influence weather.

Battle of Jutland – May 31, 1916



In naval history presumably nothing has so extensively been documented and described as the Battle of Jutland in May 1916, and no action of any two commanders has been more painstakingly analysed concerning strategy and leadership. In most general terms one possibly could say the outcome was at on par.

What has not yet been considered is whether it was reasonable to have mobilised such a huge armada of naval vessels against its enemy at the time of the year and at the location in the first place. Actually, in all respects the encounter was neither won nor lost by any of the combatants due to dust, mist and later fog. Neither of the fleet leaders, the Admirals Jellicoe and Scheer, had been prepared for this. Either of the Admirals could have won the battle if he had been advised that such a huge armada of ships, fighting and moving, would inevitably reduce the visibility in the sea area very quickly to the lowest level, by dust, mist or fog.

By the end of May, 1916 the air is already warm, so also the upper sea surface, while the lower water body is still cold. Cold water pushed to the sea surface initiates condensation in the air above the sea surface. Consequently visibility is quickly reduced. Since the Admirals had nothing but flag-signals for communication, it seems they did not foresee that such huge armada would cause bad visibility, and as such they had not been prepared for it in advance. In other words, they should either have known in advance how to ‘manage their flotilla’ if haze arises, or how to avoid the trap. 250 big vessels crisscrossing the sea at high speed in the middle of the North Sea by the end of May was worth a big bet with high certainty that mist and fog would rise from the sea surface.

The sea area of engagement was about 50 x 50 square sea miles. 151 British and 99 German vessels with a total number of 100,000 men had been on the scene. 25 ships were lost; loss of life: 10,000 men.

By raising the point of 'fog and mist' during the Battle of Jutland may only illustrate that the naval armadas had influenced the weather, and that this presumably prevented one of the two Admirals to win. However, any influencing the weather beyond the battle will not exist. For climate the biggest sea battle of surface naval vessels in Europe's waters of all times, will have passed unnoticed. But not so many thousand naval activities every day as long as the war lasted.

Tanker 'Conch' torpedoed - December 1916

Down in the English Channel, the tanker *Conch* loaded with 7,000 tons of benzene was torpedoed, which burned like a giant torch. The explosion blew the after-tank top off and showered the bridge and superstructure with blazing oil. Engines were kept running to prevent blazing oil from collecting round the ship. Steaming onwards, unmanned but still blazing furiously, she foundered next morning[3].

Naval warfare 1914-1916

The German Navy had 28 U-boats when the war started in August 1914. Their capacity was limited. By February next they had lost 7 U-boats but had sunk 10 vessels with a total tonnage of 20,000. This figure accounted for only 10% of all British losses during the first six months of war. Mines sank double that figure over the same period.

The tonnage available with the Allies and neutral countries was estimated at 40 million tons. By January 1917, 5 million tons had been sunk, but 4.4 million tons were built new.

By the end of 1915 Britain had lost 845,000 tons, 90% of which by U-boats. This is almost two ships per day. At that time 20 U-boats had been sunk. The first depth charge, actually a converted mine that detonated automatically at about 15 metres depth had been deployed in 1915. In June 1915 a new depth charge with 300 pounds TNT or amatol had been developed and was used since January 1916[4].

[3] Winton, p.46. [4] Winton, p.34

Early 1916 saw some political wrangling about U-boat warfare, which was resumed with new boats in August. A brief excerpt from Winton[5] is reproduced below with respect to the cold winter of 1916/17 in South England:

> "In September 1916 the U-boat flotilla at Zeebrugge alone sank nearly 50,000 tons of shipping in the Channel, without any hindrance from patrol vessels. It was soon clear that existing methods of combating submarines simply were not working. For example, in one week of September 1916 three U-boats operated in the Channel between Beachy Head and Eddystone Light, an area patrolled by forty-nine destroyers, forty-eight torpedo boats, seven Q-ships, and 468 armed auxiliaries – some 572 anti-submarine vessels in all, not counting aircraft. Shipping in the Channel was held up or diverted. The U-boats were hunted. They sank thirty ships, and were entirely unscathed themselves."

REMARK: A similar situation can be assumed in a number of critical sea areas, particularly in the Western Approaches and the Irish Sea. If one assumes that each of the 'anti-submarine vessels was using one depth-charge per day and was at sea for five hours per day, the waters around Britain were not only 'stirred' but 'shaken'. Actually, many mine sweepers, trawlers were also used as patrol boats and had practically no rest time[6].

During October 1916 U-boats were able to sink 300,000 tons. The average tonnage sunk during 1916 per month was ca. 190,000 tons.

From August 1914 until December 1916 the U-boats sank 2,200,000 tons. This represented a total number of 1,660 Allies' vessels[7]. However, this was only one quarter of a further 9 million tons the U-boats had sunk in the next 22 months.

So much extraordinary naval activities around the British Isles was a huge invitation to continental air masses to move freely to England and take reign during winter 1916/17 and bring about successive snow winters from 1916-1918.

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[5] Winton, p.40 [6] Taffrail, p.20 [7] Potter, Nimitz, Rohwer, p.437

Naval Warfare 1917-1918

General impact

The situation became dramatic for Britain in early 1917. U-boats sank more ships than new ships could be delivered by shipyards. In April 1917 almost the annual rate of the previous years was reached with 860,000 tons. During the year 1917 U-boats alone sank 6,200,000 tons. This amounted to more than 4,000 ships

Since early 1917 the Allies had introduced the convoy system, whereby naval vessels escorted a number of ships, roughly 20 to 30 ships in a convoy. Sailing in convoy proved quite safe for the ships, although the Germans could put up to 50 boats in operation in July 1917, and built an additional 30 boats per month. The USA had entered the war in April 1917. More than 2,000,000 men were sent to Europe during the coming months.

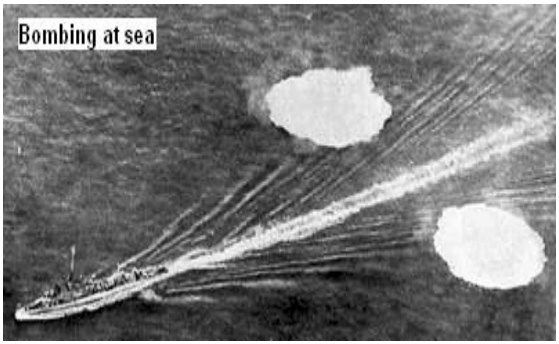
During the year 1918 until October U-boats sank another 2,500,000 tons, accumulating the total during WWI to 12 million tons. The breakup of this is: about 5,200 merchant ships, 10 battle ships, 18 cruisers, 20 destroyers and 9 submarines[8]. The total loss in naval units, Allies and Axis, was 650 ships (including 205 U-boats) with a tonnage of 1,200,000 tons[9].

Depth Charges – What it meant to attack a U-boat?

The onslaught by U-boats reached the pinnacle with almost one million tons sunk per month as on April 1917. Although the British Navy was able to prevent hundreds of attacks, real or suspected, the result was not encouraging. Only a mere 11 U-boats could be sunk in four months. New protection measures

[8] Potter, p.444 [9] Piekalkiewicz, p.589 [10] Potter, p.433

such as convoying, patrols and a new most promising weapon, depth charges, etc. were regarded necessary.



The availability of depth charges had been scarce in early 1917. Every ship was equipped with only two depth charges. With the beginning of 1918 destroyers got 30 to 40 pieces each as supplies increased[10]. What that meant for the U-boats is outlined in the following feature, and the same 'story' could possibly have happened in many dozens cases every day.

While U-boats hunted and torpedoed enemy merchant and naval vessels during the early days of WWI without hindrance, the scenario changed since 1916. They became the hunted and were depth-charged. Thousands of naval vessels steamed the seas around Britain day and night. The experience of U-boat U-72 in May 1918 may illustrate the situation at sea. In early May some 75 depth charges were dropped on the boat by anti-submarine vessels and from an airship. Later a destroyer arrived and attacked U-72 with another 20 charges. This caused a leak in a fuel tank leaving a trail of oil at the sea surface. 24 hours later U-72 was again depth-charged by two naval vessels more than 20 times. A British submarine sank U-72 a few days later.

Operating in a sensible area – Around the Shetlands

Another example: U-boats were a problem to the British. In June 1917 its shipping loss rose to over 680,000 tons. For this reason four flotilla leaders, with some 50 destroyers and seventeen submarines were sent to an area stretching from NW of Stornoway, round to the north of the Shetlands and eastwards into the North Sea between the 15th and 25th June

1917. The idea was to force the U-boats to the surface and attack them. On sixty-one occasions U-boats were sighted and were attacked twelve times[11]. In practice that presumably meant, that during the operation of 75 naval vessels many hundred depth charges had been dropped, in addition to some shelling. No U-boat was sunk. This episode demonstrates that huge operations in the sea may have taken place, which did not go by without any impact on the sea area. However, these were not accounted for in relation to climate change.

Barents Sea and Baltic Sea

The matter would be worth a detailed chapter but would require some lengths. Although the areas at no time took the centre stage they nevertheless saw immense naval activities and destruction. Particularly the intense encounters in the Barents Sea could have played some role in the strong icing in the high North in February 1915 and the harsh winter in North-West Europe 1916/17. Until early 1915 more than 450.000 tons coal and 90.000 tons weaponry had been shipped to the Russian port Arkhangelsk. Russian and German navies had laid thousands of sea mines, and dozens of minesweepers were permanently in service. U-boats sunk 25 ships in late 1916 and further 21 vessels from April to November 1917.

In the Eastern Baltic Sea many dozen mine fields were laid with some ten thousand mines. Many naval activities took place every day over four years. British and Russian submarines operated successfully. The increasing sea icing over the war years from 1914 to 1918 can be attributed to naval warfare in Baltic waters.

[11] Winton, p.70

Summary

Can the fighting around the British Isles during WWI have caused the sudden warming at Spitsbergen in 1918? That is the main question to be answered by this paper and another paper on sea mining 1914-18.

At first, however, the attention is drawn to the 'weather modification issue' by referring to the fact, that Britain had very cold winters from 1915-1918 and massive snowfall, only comparable to the conditions during WWII, weather. The compatibility of the conditions on a time scale (according to observations available) comprises the following:

- The value of mean winter temperatures, which match some of those from the record winter 1939/40.
- The extraordinary similarity in years of snowfall, time period of snowfall, quantity of snowfall and days of snowfall.
- The very extreme three cold winter year 'package' 1939-1942; also the three winters 1915-1918 were relatively cold and form a 'package' that may serve as an indication for not being 'necessarily usual'.

