

The Ice Winter of 2007/08 on the German North and Baltic Sea Coasts

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The ice winter of 2007/08 on the German coasts was very weak. The North Sea coast remained free of ice, with the exception of some insignificant ice formation in Tönning harbour. The value of the accumulated areal ice volume (indicating the severity of the ice winter) thus is zero for the North Sea coast. The value of the accumulated areal ice volume for the Baltic Sea coast is 0.01 m. Altogether, there was more ice than during last winter, but ice formation occurred only in shallow, sheltered coastal waters, whereas the sea area remained ice-free this winter again. In the observation series which have started in 1896/97 only eight winter were still weaker than the ice winter 2007/08.

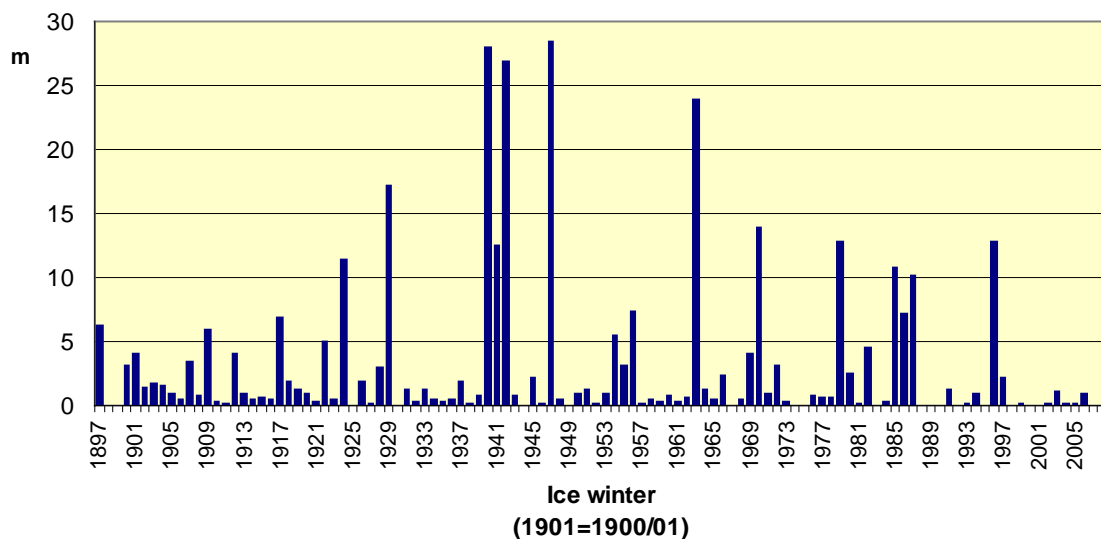


Figure 1. Distribution of accumulated areal ice volume (German Baltic coast) in the period 1897 – 2008

The winter of 2007/08 was mild. The warm weather continued mostly even in January and February, in the months with the highest probability of ice occurrence at the German coasts (see monthly air temperature mean values and their deviation from long-term means in Table 1).

Table 1. Monthly mean air temperature values (°C) in the winter of 2007/08 and their deviation (in K) from the 1961 – 1990 climatic mean (data from the German Meteorological Service)

Station	November		December		January		February		March	
	°C	K	°C	K	°C	K	°C	K	°C	K
Schleswig	5.0	0.1	3.4	1.7	4.4	4.1	4.4	3.8	4.1	1.3
Rostock-Warnemünde	5.8	0.5	3.7	1.8	4.3	4.1	5.1	4.4	5.0	1.9
Greifswald	4.6	0.1	3.2	2.1	3.6	4.2	4.8	4.8	4.5	1.8

Monthly mean air temperature values of the last three years are compared with the 1961 – 1990 climatic mean for the station Greifswald (Figure 2). The winters of 2006/07 and 2007/08 offer significant positive deviation from the climatic mean. The January 2006 was too cold, and the winter 2005/06 belongs to the moderate ice winters. The frequency of moderate ice winters in the western and southern Baltic is about 35 %.

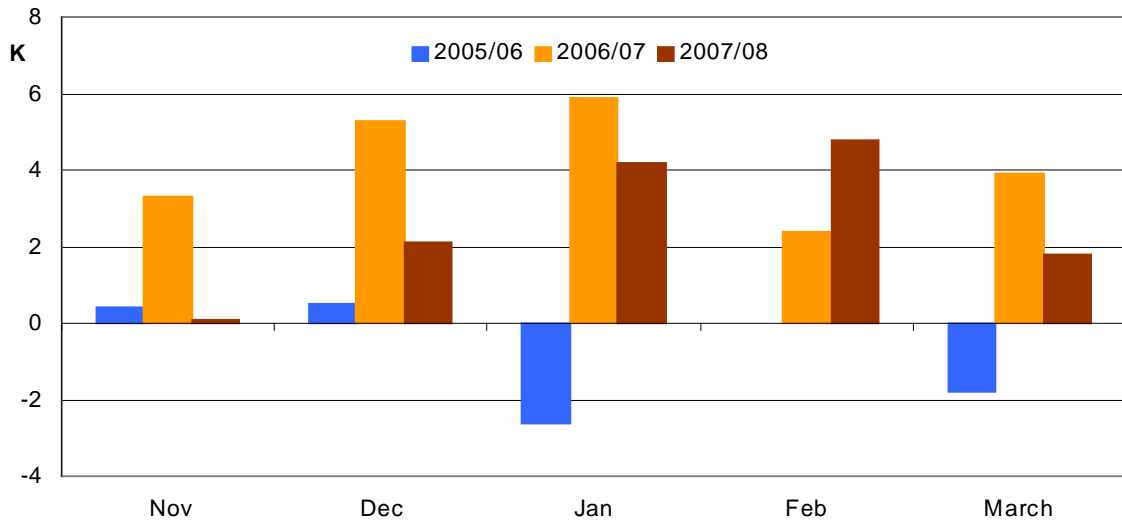


Figure 2. Deviations of the air temperature from the 1961 – 1990 climatic mean, station Greifswald

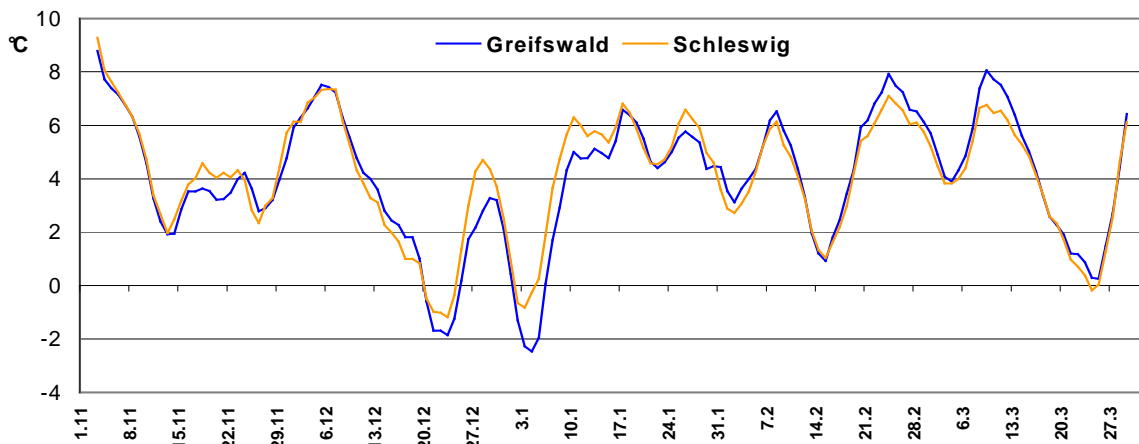


Figure 3. 5-day running means of air temperature in the winter of 2007/08 (data from the German Meteorological Service)

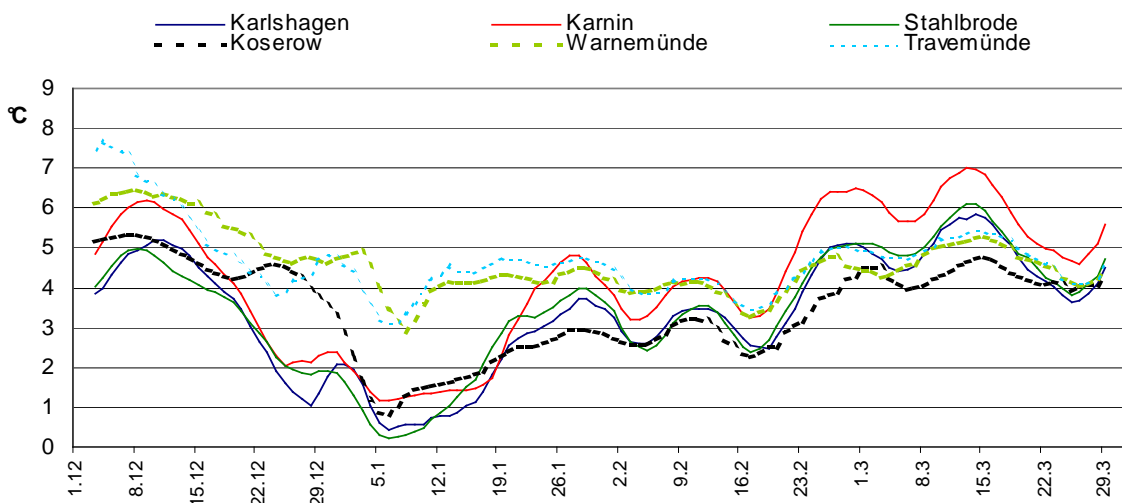


Figure 4. 5-day running means of water temperature in the winter of 2007/08

Data: Karlshagen, Karnin, Stahlbrode WSA Stralsund
 Koserow StAUN Ueckermünde
 Warnemünde StAUN Rostock
 Travemünde WSA Lübeck

The first short cold spell in late December led to cooling of the water temperature down nearly to the freezing point in the inner coastal waters, see Figure 4. However, first ice has formed predominantly during the second cold spell early January. The ice observers reported start of ice formation in small harbours and in the sheltered bodden lagoons as well as in the inner fairways of the coast Mecklenburg-Vorpommern on 4 and 5 January. The ice period lasted one week in the entrances to the harbour of Stralsund and in the western Bodden waters. Nearly three weeks ice was observed on the northern coast of Szczecin Lagoon and in the Dänischen Wiek in the Greifswalder Bodden. Maxima of ice development occurred on 7 January (Figure 5). On 14 January compacted ice was concentrated mostly at the northern coast of Szczecin Lagoon. Level ice reached thicknesses between 5 and 10 cm. According to the warm winter, obstructions to navigation did not occur in the German outer waters throughout this winter season, and only low-powered vessels were slightly hindered on a few days on the fairways to Stralsund, on the Peenestrom and in the Szczecin Lagoon. Ice occurred on the inner Schlei on 24 December and in the harbour of Tönning on 5 and 6 January (Table 2).

Table 2. Ice conditions in the waters of the German coasts in the winter 2007/08

Observation stations	Beginning of ice occurrence	End of ice occurrence	Number of days with ice	Max. thickness of level ice, cm
Kamminke, harbour and vicinity	05.01.	21.01.	17	5
Ueckermünde, harbour	05.01.	08.01.	4	5
Ueckermünde – Uecker mouth	05.01.	08.01.	4	5
Ueckermünde – Szczecin Lagoon	05.01.	08.01.	5	5-10
Karnin, Szczecin Lagoon	04.01.	19.01.	16	5-10
Karnin, Peenestrom	04.01.	19.01.	16	5-10
Anklam, harbour				New ice
Anklam, harbour – Peenestrom				New ice
Bridge Zecherin, Peenestrom	04.01.	15.01.	8	5
Rankwitz, Peenestrom	05.01.	15.01.	11	5
Warthe, Peenestrom	04.01.	13.01.	10	5-10
Wolgast – Peenemünde	04.01.	09.01.	6	5-10
Peenemünde – Ruden	04.01.	04.01.	1	5
Stralsund, harbour	04.01.	12.01.	9	10-15
Stralsund – Palmer Ort	04.01.	08.01.	2	5-10
Palmer Ort – Freesendorfer Haken	04.01.	07.01.	4	5
Greifswald-Wieck, harbour	04.01.	08.01.	5	5
Dänische Wiek	24.12.	14.01.	15	5-10
Greifswald-Ladebow, harbour	04.01.	10.01.	7	5-10
Landtief Rinne	06.01.	07.01.	2	5
Thiessow, bodden area	05.01.	07.01.	3	5-10
Thiessow, sea area	05.01.	06.01.	2	5
Lauterbach, harbour and vicinity	06.01.	11.01.	4	5
Stralsund – Bessiner Haken	05.01.	07.01.	3	5-10
Vierendehlrinne	04.01.	07.01.	4	5-10
Barhöft – Gellen, fairway	04.01.	08.01.	5	5-10
Neuendorf, harbour and vicinity	04.01.	15.01.	12	5-10
Kloster, bodden area	04.01.	13.01.	10	5-10
Dranske, bodden area	05.01.	12.01.	8	5
Wittower Ferry	05.01.	10.01.	6	5
Althagen, harbour and vicinity	06.01.	13.01.	8	5
Zingst, Zingster Strom	04.01.	11.01.	8	5-10
Barth, harbour and vicinity	04.01.	11.01.	8	5-10
Rostock, city harbour	23.12.	07.01.	5	5
Schlei, Schleswig – Kappeln	24.12.	24.12.	1	5
Tönning, harbour	05.01.	06.01.	2	5

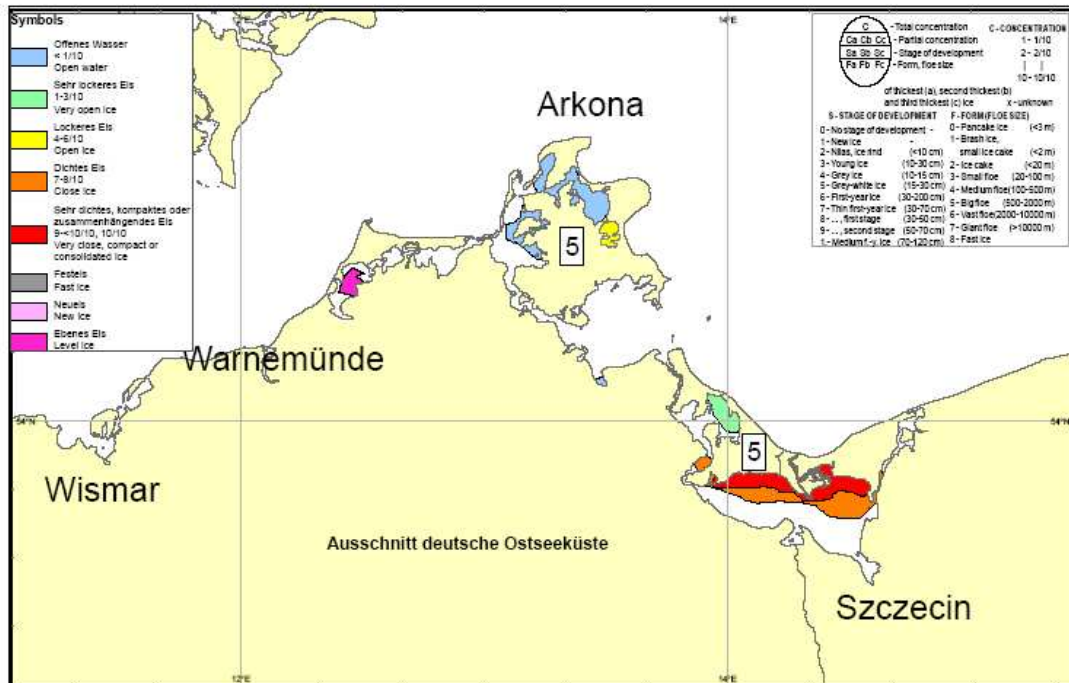
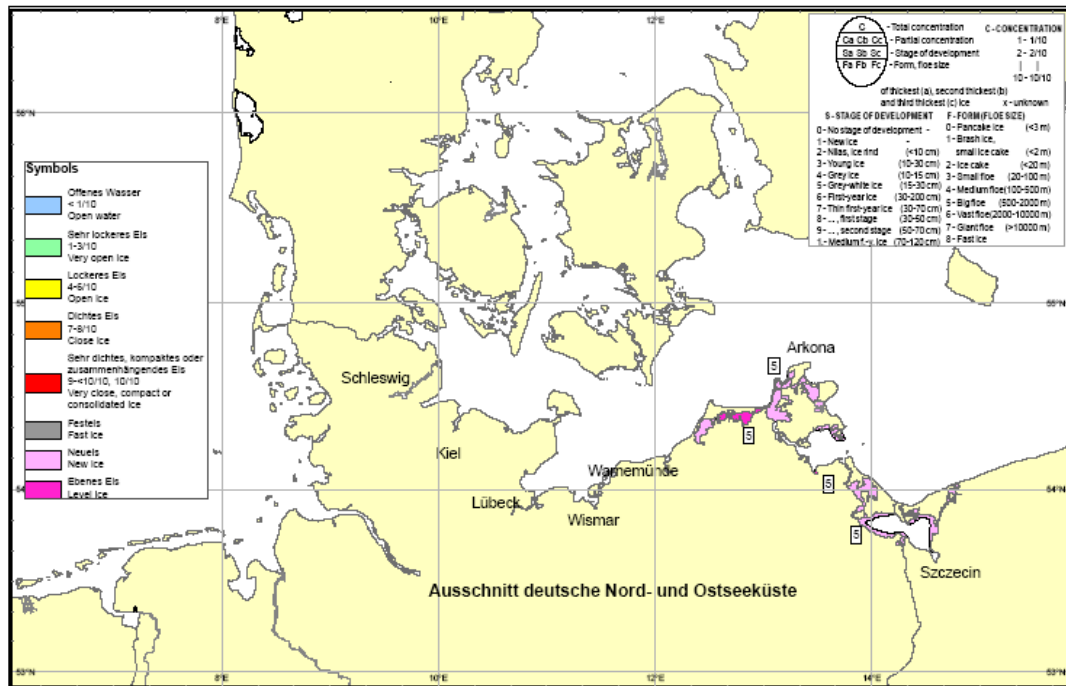


Figure 5. Ice conditions on the German coasts on 7 and 14 January 2007/08