

## Wave climate in the northern Baltic Sea in 2004

### Authors:

Heidi Pettersson, Finnish Institute of Marine Research

Anette Jönsson, Swedish Meteorological and Hydrological Institute

### Key message

The wave climate in the northern Baltic Sea in 2004 was characterised by a spring season that was calmer than usual and by a storm in December during which the significant wave height in the northern Baltic Proper reached a record value of 7.7 meters.

### Results and assessment

In 2004 Finnish Institute of Marine Research made real time wave measurements at two locations in the northern Baltic Sea, in the northern Baltic Proper (59 15.00 N, 21 00.00 E) and in the Gulf of Finland (59 57.90 N, 25 14.11 E). The measurements were made during ice free seasons.

From January to May the wave climate in the northern Baltic Proper was calmer than the long term averages (Figure 1). The highest significant wave heights during this period, 5.8 meters and 5.2, meters were recorded during two short storms in the end of January and in the beginning of March. The wave climate in the summer season was typical for the time period, the highest significant wave height, 2.8 meters, was measured in July. In September the wave climate was rougher than usual, and the significant wave height reached four meters three times. The highest significant wave height in 2004 was 7.7 meters and it was recorded 22 December. This high significant wave height in the northern Baltic Proper has been measured only once before, near Almagrundet in January 1984 (SMHI).

The wave measurements in the Gulf of Finland, off Helsinki started in May after the break-up of ice in the gulf. In the summer season the highest significant wave height, 2.8 meters, was recorded in the end of June. Like in the northern Baltic Proper, the wave climate in September was rougher than usual (Figure 2), even if the highest significant wave heights did not exceed three meters. The highest significant wave heights were measured during the December storm during which the significant wave height exceeded four meters. The highest ever measured significant wave height in the area is 5.2 meters (November 2001).

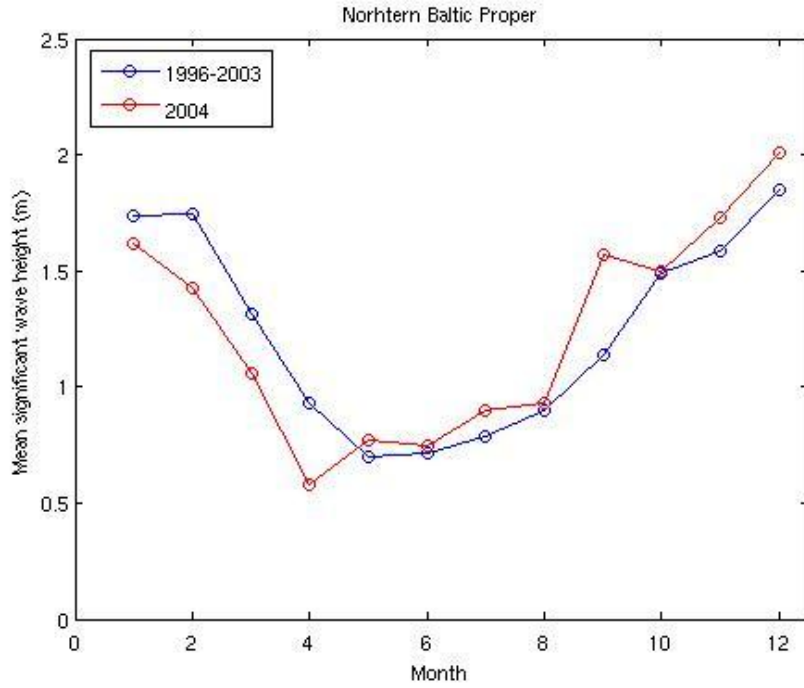


Figure 1. Monthly means of the significant wave heights in the northern Baltic Proper.

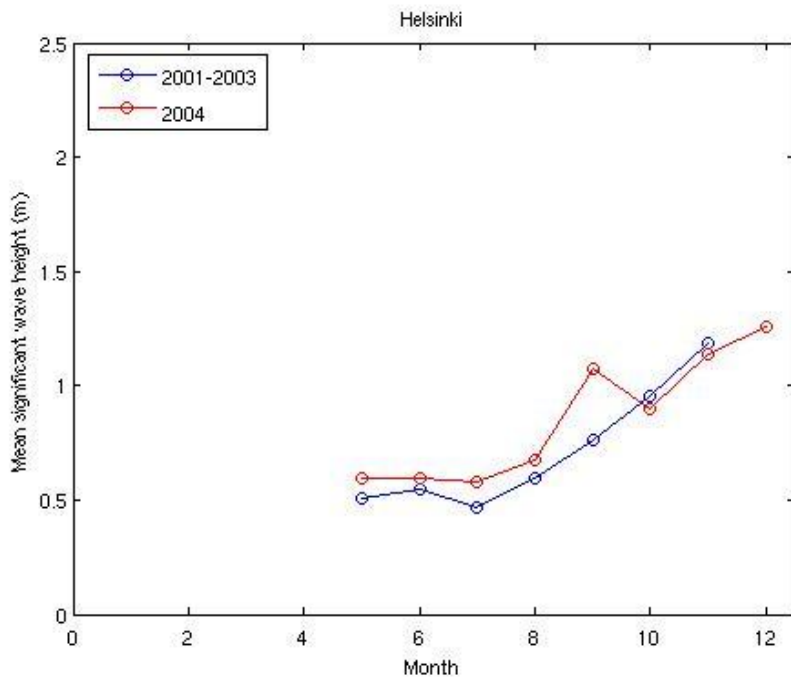


Figure 2. Monthly means of the significant wave heights in the Gulf of Finland.

Table 1 shows the maximum monthly values at these two FIMR stations together with two SMHI wave stations, Huvuskär (Baltic Proper) och Läsö (Kattegatt).

**Table 1.** Monthly maximum of significant wave heights (in meters) from stations Northern Baltic Proper (FIMR), Helsinki (FIMR), Huvuskär (SMHI) and Läsö (SMHI).

Month/station	N. Baltic Proper 59 15.00 N 21 00.00 E 1.1.- 31.12.	Helsinki 59 57.90 N 25 14.11 E 3.5. - 31.12.	Huvuskär 58 56.00 N 19 10.00 E 5.5. - 6.12.	Läsö 57 13.00 N 11 34.00 E 12.5. - 31.12.
January	5.8	-	-	-
February	4.2	-	-	-
March	5.3	-	-	-
April	2.0	-	-	-
May	2.3	1.8	2.0	2.4
June	2.2	2.8	2.1	2.0
July	2.8	2.5	2.2	2.4
August	2.6	2.3	3.1	1.9
September	4.1	3.0	3.1	2.7
October	3.5	2.5	3.1	2.6
November	6.5	3.9	5.5	4.0
December	7.7	4.2	2.4	3.4

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