



Document title	Emissions from Baltic Sea shipping in 2013
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Background

The emission estimates for the year 2013 are based on over 780 million AIS-messages sent by 17380 different ships, of which 7883 had an IMO registry number indicating commercial marine traffic. The AIS position reports were received by terrestrial base stations in the Baltic Sea countries and collected to regional HELCOM AIS data server. The HELCOM server contains position updates for each vessel every 5-6 minutes. Emissions are generated using the Ship Traffic Emission Assessment Model (STEAM) of Jalkanen et al. (2009, 2012) and further described in Johansson et al. (2013). Temporal coverage of the data was slightly lower than previously in 2012; AIS signals were received 98.7% of the time, without any significant data gaps. In the limited number of cases with missing data, routes of each vessel were interpolated between two known locations.

Total emissions from all vessels in the Baltic Sea in 2013 were 323 kt of NO_x, 80 kt of SO_x, 16 kt of PM, 35 kt of CO and 15.3 Mt of CO₂. The CO₂ amount corresponds to 4862 kilotons of fuel and 209 PJ of energy used. **The emissions of all pollutants have decreased when compared to year 2012, except CO, for which an increase of +1.3% was observed. The emissions of inland waterway traffic have been excluded from this report.**

Emissions, ship numbers and fuel consumption from IMO registered, large vessels showed slight change with respect to 2012. (NO_x: 306 kt, -1.5 %, SO_x: 76 kt -0.7%, PM_{2.5}: 15.1, -0.5%, CO: 33 kt, +1.3%, CO₂: 14.3 Mt, -0.7 %, fuel consumption: 4523 kt, -0.7 %). Total number of IMO-registered ships was 7883 (0 %) which is very close to 2012 number (7885).

Activities from non-IMO registered traffic (presumably small boats) increased significantly with respect to 2012. The number of small boats was 7465, increase of +27.2% from 2012. Thus, **small vessels constitute more than half (54.6%) of the number of AIS transceivers in the Baltic Sea area.** The amount of small vessels, and their contribution to emissions, has been steadily increasing from 2006. In 2012, the overall contributions of small vessels to emissions are as follows NO_x: 5.2%, SO_x: 4.6 %, CO: 9.3 %, PM: 6.2% and CO₂: 6.0 %. The addition of AIS transceivers to small boats will increase the fraction of pleasure craft traffic included in emission calculations. The annual increase of small vessels included in AIS data will inevitably also increase the total emissions from the Baltic Sea shipping.

More detailed information can be found in the attached report of the Finnish Meteorological Institute.

Action required

The Meeting is invited to take note of the information.