Geophysical Research Abstracts
Vol. 15, EGU2013-12100, 2013
EGU General Assembly 2013

Sea Salt Source Function over the Baltic Sea

Tomasz Petelski, Przemyslaw Makuch, Piotr Markuszewski, Andrzej Jankowski, and Tymon Zieliński
Institute of Oceanology, Polish Academy of Sciences, Powstancow Warszawy 55, 81-712 Sopot, Poland
(petelski@iopan.gda.pl)

Studies of production and transport of aerosol over the sea are very important for many areas of knowledge. Marine aerosol emitted from the sea surface helps to clean the boundary layer from other aerosol particles. The emitted droplets do not dry out in the highly humid surface layer air and because of their sizes most of them are deposited quickly at the sea surface. Therefore, marine aerosol has many features of rain i.e. the deposition in the marine boundary layer in high wind events is controlled not only by the "dry" processes but also by the "wet" scavenging.
While many cruises conducted on board S/Y Oceania, we collected many data which were used to calculate sea salt source function over the Baltic Sea. Our cruises held between 2009 and 2012. Measurements were carried out using gradient method. For this method we used Laser Particle Counter (PMS model CSASP-100_HV) placed on one oft the mast of S/Y Oceania. Measurements were performed on five different levels around sea level: 8, 11, 14, 17 and 20 meters.
Based on the averaged vertical concentration, profiles were calculated, using Monin-Obuchow theory, vertical sea spray fluxes in the near water layer. Based on fluxes calculated from vertical concentration profiles was calculated sea salt source function over the Baltic Sea. This function gives emission for different particle size, depending on environmental parameters. Emission of sea spray depends of the size of energy lost by the wind waves in process of collapse.

Acknowledgements: The support for this study was provided by the project Satellite Monitoring of the Baltic Sea Environment – SatBałtyk founded by European Union through European Regional Development Fund contract No. POIG 01.01.02-22-011/09.