

Task Force on Measurements and Modeling (TFMM)

In the framework of cooperation with TFMM MSC-E participated in the 17th meeting of the Task Force held in May 2016 in Utrecht (the Netherlands). Participants of the meeting were informed about the progress in the MSC-E activities related to the assessment of heavy metal and POP pollution levels in the EMEP region.

Heavy Metals

In particular, information on current status of country-specific case studies, cooperation with WGE, evaluation of long-term trends of heavy metal levels, transition to the new EMEP grid and formulation of priorities to improve lead, cadmium and mercury emission inventories was presented. Besides, special attention was paid to mercury-related activities, such as multi-model assessment of global mercury pollution, study of mercury atmospheric chemistry, contribution to the UNEP Global Mercury Assessment.

Case study of lead pollution assessment with fine spatial resolution in Belarus was described in details. TFMM was informed about input data provided by national experts for this study, modeled output information with spatial resolution 10x10 km² produced for the country, and results of verification of modeling results. Major activity was focused on analysis of the uncertainties of the model, observations and emission data. On the base of the analysis main conclusions were drawn and recommendations for the further research in Belarus and the EECCA countries were formulated. Finally, progress and further plans regarding the case studies for the United Kingdom and Poland were demonstrated.

Persistent Organic Pollutants

Ongoing work of MSC-E on the refinement of the GLEMOS modeling system comprises implementation of the new EMEP grid for the routine model calculations, updating of open code version of GLEMOS, and improvements of modeling approach for POPs. It includes collection and analysis of information on congener contributions for POP mixtures (e.g. PCDD/Fs), refinement of parameterization of atmospheric transformation and removal processes as well as inter-media exchange, further development of methodology for the evaluation of source-receptor relationships accounting for multi-media transport of POPs and evaluation of intercontinental transport to and from the EMEP region.

Research activities in these directions are performed with the exchange of information and cooperation with the UNEP Stockholm Convention on POPs including also collaboration with national experts in POP modeling. Specific attention has been given to the issues related to the preparation of emission data for model assessment.

Particular attention has been paid recently to air pollution in urban areas of the EMEP countries and exceedances of air quality limits. To contribute to the analysis of population exposure to elevated

pollution levels EMEP initiated a study aimed at quantification of B[a]P air concentrations in urban areas. Outline of this study and preliminary results were presented during the meeting.

First stage of the work is focused on the evaluation of B[a]P air concentrations for the Czech Republic due to availability of data on emissions and measurements. The methodology of the study is based on previously developed approaches that applied multiple regression models to describe functional relationship between measured urban concentrations, rural concentrations and secondary parameters including meteorological, geophysical data, and modeling results. Obtained results show in general reasonable agreement of estimated B[a]P concentrations for urban areas in the Czech Republic with measurements. At the same time, some discrepancies require further development of applied approach in order to reduce the level of uncertainties in estimates of B[a]P concentrations in urban areas. Preliminary results on the evaluation of B[a]P pollution of urban areas in the Czech Republic are briefly described in this report. Detailed information on this study can be found in the Technical Report [*Shatalov et al.*, 2016].

Further work in this direction will include refinement of developing methodology and its application to the analysis of pollution levels in other EMEP countries. It is planned to discuss the issue of B[a]P pollution in urban areas at a thematic session of the forthcoming 2nd joint session of the Steering Body to EMEP and the Working Group on Effects in September 2016.