

European Union and GMOS project

In the framework of co-operation with the European Commission MSC-E takes part in the EU funded project GMOS (Global Mercury Observation System). GMOS is a five-year project launched in 2010 and coming to the end this year. It is aimed at (see Fig. 1):

- Establishment of a global monitoring system for mercury including land-based, over-water and aircraft observations;
- Update of emission inventories for mercury and elaboration of future emission scenarios;
- Improvement and validation of regional and global scale atmospheric mercury models;
- Model application to evaluate source-receptor relationships, temporal trends and scenarios;
- Development of interoperable system for dissemination of the project output data.

MSC-E as a leader of one of the project work packages (WP7) co-ordinates the modelling activities on a global scale as well as takes part in the regional scale model assessment. The model consortium of the project consists of four global/hemispheric models and two regional scale models from different scientific groups of Europe and North America. The main achievements of model development and applications include:

- Update of modelling approaches and coupling global and regional-scale models;
- Model applications for the present-day conditions and reproduction of historical trends;
- Evaluation of mercury intercontinental transport patterns and contribution of global sources to mercury pollution in Europe;
- Forecasting mercury concentration and deposition patterns as well as source-receptor relationships for selected emission scenarios.

Some results of the model assessment focused on evaluation of mercury intercontinental transport and forecasting of future mercury pollution are described in Sections 1.5 and 5.2.2 of the [HM Status report](#).

In addition, a new scientific cooperative initiative GMOS Mercury Modelling Task Force has been launched as a part of the GMOS project with support of the UNEP Mercury Air Transport and Fate Research Partnership (UNEP F&T) and the Group on Earth Observation (GEO, Task HE-02-C1). It is aimed at application of chemical transport models supplemented by comprehensive monitoring data for the improvement of current understanding of the key mercury processes in the atmosphere. MSC-E, as a GMOS partner and coordinator of global-scale modelling activities within the project performs general coordination of the Task Force and leads the multi-model assessment on a global scale.

The work of the Task Force is organized in the form of multi-model experiments aimed at answering particular scientific questions related to mercury atmospheric chemistry, anthropogenic and

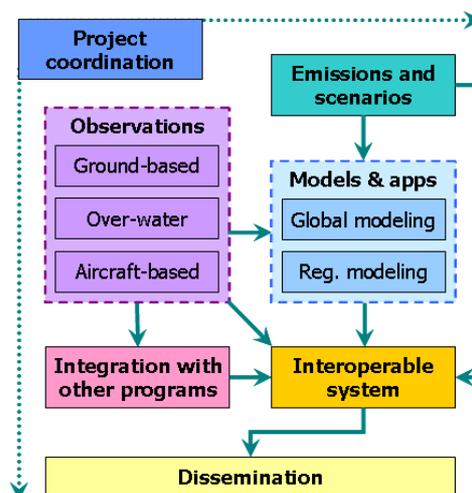


Fig. 1. General structure of the GMOS project

natural/secondary emissions, deposition etc. The simulation results are evaluated against variety of observations from the GMOS land-based network as well as measurement network of external partners, aircraft and ship-based measurements. Preliminary results of the multi-model assessment under the Task Force are discussed in Section 3.1 of the [HM Status report](#).

MSC-E research and developments under the GMOS closely correlate with the activities carried out within the EMEP/TFHTAP and the UNEP efforts to support implementation of the Minamata Convention on Mercury.