



GENASIS national and international monitoring networks for persistent organic pollutants

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Persistent organic pollutants (POPs) remain in the centre of scientific attention due to their slow rates of degradation, their toxicity, and potential for both long-range transport and bioaccumulation in living organisms. This group of compounds covers large number of various chemicals from industrial products, such as polychlorinated biphenyls, etc.

The GENASIS (Global Environmental Assessment and Information System) information system utilizes data from national and international monitoring networks to obtain as-complete-as-possible set of information and a representative picture of environmental contamination by persistent organic pollutants (POPs). There are data from two main datasets on POPs monitoring:

1. Integrated monitoring of POPs in Košetice Observatory (Czech Republic) which is a long term background site of the European Monitoring and Evaluation Programme (EMEP) for the Central Europe; the data reveals long term trends of POPs in all environmental matrices. The Observatory is the only one in Europe where POPs have been monitored not only in ambient air, but also in wet atmospheric deposition, surface waters, sediments, soil, mosses and needles (integrated monitoring). Consistent data since the year 1996 are available, earlier data (up to 1998) are burdened by high variability and high detection limits.

2. MONET network is ambient air monitoring activities in the Central and Eastern European region (CEEC), Central Asia, Africa and Pacific Islands driven by RECETOX as the Regional Centre of the Stockholm Convention for the region of Central and Eastern Europe under the common name of the MONET networks (MONitoring NETwork). For many of the participating countries these activities generated first data on the atmospheric levels of POPs. The MONET network uses new technologies of air passive sampling, which was developed, tested, and calibrated by RECETOX in cooperation with Environment Canada and Lancaster University, and was originally launched as a model monitoring network providing public administration, private subject, and general public information about air pollution by POPs that had not been previously regularly monitored and whose measurement is further required by global monitoring plan of the Stockholm Convention. The MONET network is international project with many participants. Monitoring in the MONET-CZ network started in 2004 with the pilot project and continues to the current days, MONET CEEC started in 2006 and continues nowadays, MONET Africa started in 2008. The database of the GENASIS systems currently covers MONET-CZ data until the year 2008. The MONET network currently covers 37 countries in the Europe, Asia and Africa with more than 350 sampling sites.

The paper will discuss about following topics

- * Data Fusion in GENASIS: how can GENASIS maximize the value and accuracy of the information gathered from heterogeneous data sources?
- * Sensor types in GENASIS: which POPs can be measured; what are the physical limitations to achievable accuracy, reliability, and long-term stability of miniaturized sensors; which applications can (not) be realized within these limitations?