



Jul 11th, 4:30 PM - 4:50 PM

The European Information Platform for Chemical Monitoring (IPChem) - How can you realize interoperability?

Gerlinde Knetsch

German Environment Agency, gerlinde.knetsch@uba.de

Maria Ruether

German Environment Agency, maria.ruether@uba.de

Follow this and additional works at: <https://scholarsarchive.byu.edu/iemssconference>

 Part of the [Civil Engineering Commons](#), [Data Storage Systems Commons](#), [Environmental Engineering Commons](#), [Hydraulic Engineering Commons](#), and the [Other Civil and Environmental Engineering Commons](#)

Knetsch, Gerlinde and Ruether, Maria, "The European Information Platform for Chemical Monitoring (IPChem) - How can you realize interoperability?" (2016). *International Congress on Environmental Modelling and Software*. 9.
<https://scholarsarchive.byu.edu/iemssconference/2016/Stream-A/9>

This Event is brought to you for free and open access by the Civil and Environmental Engineering at BYU ScholarsArchive. It has been accepted for inclusion in International Congress on Environmental Modelling and Software by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen_amatangelo@byu.edu.

The European Information Platform for Chemical Monitoring (IPChem) - How can you realize interoperability?

Gerlinde Knetsch, Maria Ruether

German Environment Agency, WoerlitzerPlatz 1, 06844 Dessau-Rosslau, Germany,

Gerlinde.Knetsch@uba.de

German Environment Agency, Corrensplatz 1, 14195 Berlin, Germany

Maria.Ruether@uba.de

Abstract: Monitoring programs in Germany offer a large variety of data. On the one hand, these data are generated over many years in selected sampling areas; on the other hand, studies of monitoring take place in the context of research projects or other investigations. These data are often available in web-based information systems. Two databases will be presented with their potential for the interoperability with a (technical) platform for data of the chemical monitoring. The European project "Information Platform for Chemical Monitoring (IPChem)" promotes networking of various existing databases and information systems with the goal of advancing the environmental data exchange between different disciplines.

Keywords: *IPChem, environmental monitoring; human biomonitoring; Environmental Specimen Bank; POP-Dioxin Database; interoperability, Digital Agenda, Open Data*

1 INFORMATION PLATFORM FOR CHEMICAL MONITORING

1.1 Introduction

The implementation of the Digital Agenda of the European Commission needs interoperability and new technical approaches for an integrated multi-disciplinary data management. The EU-project "Information Platform for Chemical Monitoring (IPChem)" financed by the European Commission of Environment (DG Env) promotes interoperability of existing databases and information systems. The aim of this project is to connect and interlink data and information of monitoring activities to assess transport and fate of multiple chemicals in the environment and food chain and ultimately combined impact on human health (European Commission 2016, Betti, M. 2013).

The Platform aims to support a coordinated approach for collecting, storing, and accessing data related to the occurrence of chemicals and chemical mixtures, in relation to humans and the environment. "This would help identify links between exposure and epidemiological data in order to explore potential biological effects and lead to improved health outcomes" (COM/2012/0252 final).

2 MATERIALS AND METHODS

The EU project "Information Platform for Chemical Monitoring (IPChem)" establishes a direct and tailor-made link to data collections. Providers maintain databases structure, while combining their knowledge and rendering it accessible for search and retrieval through a unique interface. This creates larger visibility and promotes a wider use of valuable chemical monitoring data, thus amplifying the knowledge base for a sound risk management and communication. Combining information from different sources on a variety of environmental media, consumer products, food, and ultimately from human beings themselves, provides the basis for understanding combined exposure and the effects of chemical mixtures (Doldirina, C. 2015).

IPCheM is designed and implemented as a de-centralized system and is characterised by a distributed infrastructure. This means the data owner or data provider remain responsible for their data. One aspect is to avoid data duplication; the other is to always have the current data in access. There are remote connections with remote servers and web-applications. However, this is not currently possible for all datasets and therefore data owner or data provider are involved in the process to identify the best way to make the data available and accessible through IPCheM. A "Technical Form" gathers the preliminary information needed to integrate a data collection and identify the best solutions for accessing or hosting the data in IPCheM.

IPCheM is based on the principle of Open Data. A data policy describes in detail the accessibility to data in the IPCheM. Data shall be made available to users at the highest possible level of detail, under the conditions of free, full, open, and timely access. However, there are also data owners and data providers want or have to restrict data access in specific cases, for example to respect legal requirements. IPCheM can restrict data access to metadata, aggregated data and filtered or generalised a single measurement. Based on these conditions, the data provider can decide on the level of detail which data is accessible for each of the user groups.

3 RESULTS AND DISCUSSION

More than 20 databases or data collections have been included in this platform up to now (2016). IPCheM is structured into four modules:

1. Human Biomonitoring data module
2. Environmental monitoring data module
3. Food and Feed Monitoring data module
4. Product and indoor air monitoring data

The German Environment Agency (UBA) is a partner of this project with regard to the integration of two information systems: the German Environmental Specimen Bank and the POP-Dioxin-Database of Federation and Federal States (Knetsch G, R  ther M. 2015). Interfaces have been developed for transmission of a core data set of metadata and the analytical data of the measurement programs.

When the cooperation started, both information systems provide metadata and analytical data of the substance group Polychlorinated Biphenyls (PCB) for the module "Environmental monitoring data" for enabling the project team of JRC to test the methodology for the IT solution. The so-called POP-Dioxin-Database has a cross-media approach. That means data of polychlorinated biphenyls (PCBs) and other POP data in different environmental and human compartments are structured in a database system, accessible via a web-based service interface (Knetsch 2012).

For the Environmental Specimen Bank (ESB) the data are already publicly accessible via a single access point and comprises a broader range of substance groups. The ESB provides also data for the "Human biomonitoring data module". Networking in the ESB community has a long tradition and focuses on two aspects: harmonization of scientific methods and data interchange and integration. In 2008, the International Environmental Specimen Bank Group (IESB) was launched and set up a joint website to promote and share ideas among ESBs and interested parties (Ruether et al. 2011).

IPCheM with its single access point to locate and retrieve chemical monitoring data from different data providers, gives the chance to make the data known beyond the specimen bank and human biomonitoring communities and for the substance group of persistent organic pollutants (POPs). This means added value for our investigations and both the public and the scientific community would have the chance to profit from these data. Because a platform for data interchange is still missing -IPCheM could be a chance to fill this gap.

One of the goals of the planned EU project „European Human Biomonitoring Initiative“ is to include all new gathered data and metadata as well as existing Human Biomonitoring data to IPCheM (European Commission, 2015).

A data policy of our agency defines the regulations for data access and data retrieval. This approach creates a larger visibility and promotes a wider use of valuable chemical monitoring data. The German Environment Agency is fostering this approach because it is committed to open data strategy.

REFERENCES

- Betti M. 2013 Connecting EU multidisciplinary data to prove health knowledge: INSPIRE and IPChem. European Commission, 2013.
<https://ec.europa.eu/jrc/sites/default/files/events/20131114-public-health/20131114-public-health-betti.pdf>, last accessed 2016-05-30
- Doldirina, C. 2015: IPChem - The Information Platform for Chemical Monitoring. http://www.iscintelligence.com/archivos_subidos/catherine_doldirina_ipchemhealthupdated.pdf, last accessed 2016-05-30
- European Commission 2016: Information Platform for Chemical Monitoring <https://ipchem.jrc.ec.europa.eu/RDSDiscovery/ipchem/index.html>, last accessed 2016-05-30
- European Commission 2015: The European Human Biomonitoring Initiative <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3050-sc1-pm-05-2016.html>
- European Commission 2012/0252: Communication from the Commission to the council - The combination effects of chemicals Chemical mixtures. <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52012DC0252>. last access 2016-06-01
- German Environmental Agency 2016: German Environmental Specimen Bank, <https://www.umweltprobenbank.de/en/documents>, last accessed 2016-05-30
- Knetsch G. 2012: Chemicals in our life - Communication Strategies for Chemical Information under REACH / In: EnviroInfo 2012 : Man - Environment - Bauhaus ; Light up the Ideas of Environmental Informatics, 26th International Conference on Informatics for Environmental Protection ; Proceedings of the 26th International Conference on Informatics - Informatics for Environmental Protection, Sustainable Development and Risk Management, August 29-31, 2012, Dessau-Roßlau/GER. - Part 1. Core Application Areas - (2012), S. 119-124
- Knetsch G, Rüter M. 2015: Interoperability of Environmental Data with a European Information Platform for Chemical Monitoring (IPChem) Data management across the disciplines. EnviroInfo & ICT4S - Building the knowledge base for environmental action and sustainability: Adjunct Proceedings of the 29th International Conference on Informatics for Environmental Protection and the 3rd International Conference on ICT for Sustainability, 7-9 September 2015, Copenhagen, Denmark / Vivian Kvist Johannsen, Copenhagen.
- Rüter, Maria; Koschorreck, Jan; Bandholtz, Thomas (2011): Networking Activities of Environmental Specimen Banks. In: W. Pillmann, S. Schade, P. Smits (Eds.): EnviroInfo 2011. Innovations in Sharing Environmental Observations and Information. Proceedings of the 25th International Conference EnviroInfo, October 5-7, 2011, JointResearch Centre Ispra, Institute for Environment and Sustainability, Italy (2011), 170-178 (Part I). Shaker Verlag ISBN 978-3-8440-0451-9
<http://www.inter-esb.org>.last accessed 2016-06-02