



## Master Thesis

### Mercury monitoring to evaluate the effectiveness of the Minamata Convention in Switzerland

Mercury (Hg) is a highly toxic, global pollutant that affects health of humans and wildlife. The UNEP Minamata Convention on Mercury was adopted in 2013 aiming to reduce the threats from Hg pollution specifically by curbing global anthropogenic Hg emissions to the environment. Therefore, the Conference of the Parties (over 130 countries incl. Switzerland) is required to control mitigation measures by monitoring the global Hg cycle. Analysis of trends in air Hg concentrations has been identified as one of the primary and most appropriate types of Hg monitoring to evaluate the effectiveness of the Convention.

The objective of this master project is to implement a measurement network that monitors temporal trends and spatial distribution of air Hg concentrations across Switzerland. To achieve these goals, we deploy low-cost, Mercury Passive Air Sampler (MerPAS) to monitor Hg at 22 locations across Switzerland (16 NABEL and six Swiss FluxNet sites). Once collected, the MerPAS are analyzed in the laboratory of the Environmental Geosciences Research Group Alewell using thermal decomposition, amalgamation and atomic absorption spectrophotometry. We expect a gradient of increasing air Hg concentrations from rural, to suburban, and urban sites and a decreasing air Hg concentrations along an elevational gradient from lowland, to subalpine to alpine locations.

This master project involves field and mostly lab work and will be closely supervised by the project PI Dr. Stefan Osterwalder (ETH Zurich). We aim to publish the results of this Master's thesis in an open access, peer-reviewed scientific journal. The project is funded by the Federal Office for Environment (FOEN).



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