

## Master thesis positions in environmental chemistry

Department of Aquatic Sciences and Assessment, SLU, Uppsala

### **1. Evaluation of the performance of high volume air samplers for measuring current-use pesticides in air**

Current-use pesticides (CUPs) are chemicals intended to be used to protect plants for damaging influences such as weeds or insects. Although the widespread occurrence of CUPs in the environment has been documented, much less is known about their potential for long-range atmospheric transport. The student performing this master thesis work will measure CUPs in air samples (gas and particle phase) in order to evaluate the sampling efficiency and performance of high volume air samplers for measuring CUPs in air. In addition, the occurrence of CUPs at a Swedish monitoring site, seasonality and gas-particle partitioning will be investigated. The evaluation of the performance of high volume air samplers and the analysis of air samples for CUPs will be performed by the student. The student should have laboratory experience and be interested in analytical chemistry. The time period of the project will be at least 6 month and will start no later than spring 2013.

### **2. Temporal trends and fluxes of fluorinated contaminants in sediment cores**

Fluorinated contaminants are emerging pollutants that have received increasing public attention due to their persistence, bioaccumulative potential, and possible adverse effects on human and wildlife. A widely used way to reconstruct the historical trend of contaminants is to study sediment cores. The student performing this master thesis work will investigate fluorinated contaminants in sediment core samples to examine their flux deposition and temporal trends. The chemical analysis will be performed by the student. The student should have laboratory experience and be interested in analytical chemistry. The time period of the project will be at least 6 month and will start no later than summer 2013.

### **3. Method development for measuring novel brominated flame retardants in water and sediment samples**

Brominated flame retardants are a group of flame retardants used in a variety of consumer products such as electronics, plastics and textile. They have also become widely distributed in the aquatic environment where they can cause adverse effects to organisms. The student performing this master thesis work will develop an analytical method for measuring brominated flame retardants in water and sediment and apply the method on field samples. The method development and sampling of water and sediment will be performed by the student. The student should have laboratory experience and be interested in analytical chemistry. The time period of the project will be at least 6 month and will start no later than summer 2013.

#### **4. Screening of endocrine disruptor compounds in Swedish rivers**

Endocrine disruptors are chemicals that interfere with the hormone system in aquatic organisms and can cause adverse effects at low exposure levels. After entering the aquatic environment, endocrine disruptors have the potential of being widely transported by riverine systems. The student performing this master thesis work will measure endocrine disruptors (e.g., phthalates, brominated flame retardants and fluorinated contaminants) in Swedish rivers to investigate their distribution and mass flow. The water sampling and chemical analyses will be performed by the student. The student should have laboratory experience and be interested in analytical chemistry. The time period of the project will be at least 6 month and will start no later than summer 2013.

#### **5. Characterization of passive samplers for measuring emerging persistent organic pollutants in water**

Emerging persistent organic pollutants (POPs) have received increasing public attention due to their persistence, bioaccumulative potential, and toxicity. However, only a few data are available of the presence of emerging POPs in water. Thus, there is a need for a simple sampling technique to improve our understanding of the seasonal trends and spatial distribution of PFASs in the aquatic environment. The student performing this master thesis work will compare different passive sampler types for the measurement of emerging POPs in water and apply the passive sampler on field samples. The method development and sampling of water will be performed by the student. The student should have laboratory experience and be interested in analytical chemistry. The time period of the project will be at least 6 month and will start no later than summer 2013.

Contact persons

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