

SIRI...

TELL ME MORE ABOUT GROUNDWATER FLUX

An overview by
iFLUX

As an expert in measuring groundwater fluxes and mass discharges, we have bundled relevant information into this flux information sheet.

You will find an overview of documentation regarding flux measurements, different measuring techniques and applications in the field.

iFLUX



FLUX MEASUREMENTS

UNDERSTAND THE MASS FLUX CONCEPT

The ITRC technology overview, *Use and Measurement of Mass Flux and Mass Discharge* (MASSFLUX-1, 2010) provide a description of the underlying concepts, potential applications, description of methods for measuring and calculating, and case studies of the uses of mass flux and mass discharge.

- *This technology overview is intended to foster the appropriate understanding and application of mass flux and mass discharge estimates and provide examples of use and analysis.*

HOW TO USE FLUX CONCEPTS

CRC Care is an Australian network that brings together industry, government, science and engineering to prevent, assess and clean up environmental contamination. CRC CARE's technical report series comprises a comprehensive collection of work carried out by CRC CARE and its partners. This work is done to address technical issues of importance to industry and government.

- *Technical report 37 (2016) illustrates how flux concepts, tools and measurements can be used to assess and manage groundwater contamination, including engaging with regulators and other stakeholders.*

WHY FLUX MEASUREMENTS OFFER MORE CERTAINTY

The universities of Leipzig and Kiel Germany studies the impact of flow conditions on concentrations as point measurements (even assuming a homogeneous distribution of hydraulic conductivity). Technical report 37 (2016) illustrates how flux concepts, tools and measurements can be used to assess and manage groundwater contamination, including engaging with regulators and other stakeholders.

- *Passive flux sampling measurement can improve mass flux estimates under dynamic flow conditions.*

HOW TO IMPROVE FLUX MEASUREMENTS

The research portal of Flanders offers an overview of publicly funded research and brings researchers closer together.

- *In order to refine the flux measurement the impact of the distortion of the monitoring wells on the flow field is studied. The results of this study makes it possible to plot the functional relationships of the distortion of the flow field with the hydraulic conductivities of the filter screen and filter pack and corresponding diameters and helps to optimize the quality of the flux measurement.*

DIFFERENT MEASURING TECHNIQUE

DIFFERENT METHODS TO DETERMINE GROUNDWATER VELOCITY

The book "Groundwater Velocity" (J.F. Devlin by [The Groundwater Project](#)) provides a clear understanding on the advantages and hurdles to determine groundwater velocity and it explains multiple methods for measuring it.

- *The iFLUX samplers are an application of the Passive Flux Meters described in this work.*

DIFFERENT PASSIVE SAMPLERS COMPARED

USGS (United States Geological Survey) studies the landscape of the United States, its natural resources, and the natural hazards that threaten it.

- *They wrote a report that compares 8 different passive samplers for groundwater monitoring. Unfortunately, the technique at the basis of iFLUX, PFM (Passive Flux Meter), is not included in this overview.*

SENSOR BASED WATER RESOURCE MANAGEMENT

Core is a network for researchers, universities and industries that collects and shares research and publications.

- *The university of Nebraska published the results of two demonstrations of sensor based water resource management. The study shows how life-cycle costs and carbon footprints can be reduced by using sensors.*

APPLICATIONS

APPLICATIONS OF PFM IN OUR FOUNDERS RESEARCH

Our own founder is a renowned researcher and wrote several articles about the studies and field tests executed.

- *The first application of the PFM (Passive Flux Meter) for the measurements of chlorinated aliphatic hydrocarbon in source and plume zones.*
- *A risk management strategy for groundwater contamination using mass flux measurements.*

FOLLOW UP ON THE EVOLUTION OF THE SOURCE ZONE

The site ResearchGate is an international network for scientists and shares scientific publications. Here you find a selection of articles related to flux measurement.

- *A more recent article about the evolution of DNAPL source zones in time.*

FLUX MEASUREMENTS FOR CHARACTERIZATION

CityChlor is an Interreg project with partners from France, the Netherlands and Belgium.

- *In this project, several innovative techniques are investigated. For passive flux measurement, a code of good practices is written.*

ADDITIONAL INFORMATION BESIDES CONCENTRATION DATA

CL:AIRE is a network situated in England and Wales whose goal is to raise awareness and pursue shared objectives in land, water and environmental management by collecting strategic industry information and developing industry initiatives that improve efficiency and save money.

- *Recently (d.d. July 2020) a publication is shared of a case study in the Netherlands demonstrating iFLUX passive flux samples are practical and accurate tools and shows the value of flux measurements additional to traditional concentration measurements*