BGD ECOSAX GMBH

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# Groundwater prediction system (GWSimPro) and process-based laboratory system

**Within the scope of the detailed investigation of sites containing contaminated soil and groundwater and the development of MNA-concepts (Monitored Natural Attenuation) as well as the resulting demand and extent of remediation measures, reliable prediction of contamination propagation is required. The available stage of investigation is often not sufficient to enable reliable prediction of the propagation of contaminants in the soil and groundwater area. This often results in considerable uncertainties in their assessment.**

In order to avoid these issues, two practice-orientated and closely linked research & development projects were undertaken. The **groundwater prediction system (GWSimPro)** enables the application of reactive solute transport and heat transfer simulation models in groundwater with the current state of knowledge using the model approach of dual porosity. The development of a **process-based laboratory system** is applied to automatically determine soil and groundwater migration parameters. Based on both research & development projects, a tool was developed which enables decisions as to whether remediation activities for soil or groundwater cleanup are necessary (based on risk assessment) and which remediation costs are to be expected, resulting in high standards of prediction quality, a high degree of cost certainty and acceptance by the authorities.

## groundwater prediction system (GWSimPro)

GICON® · TECHNISCHE UNIVERSITÄT DRESDEN · Jungk-Consult GmbH Wasser Umwelt Energie


**Contact:**
Matthias Beyer
T: +49 351 47878 40
E: m.beyer@gicon-smg.de

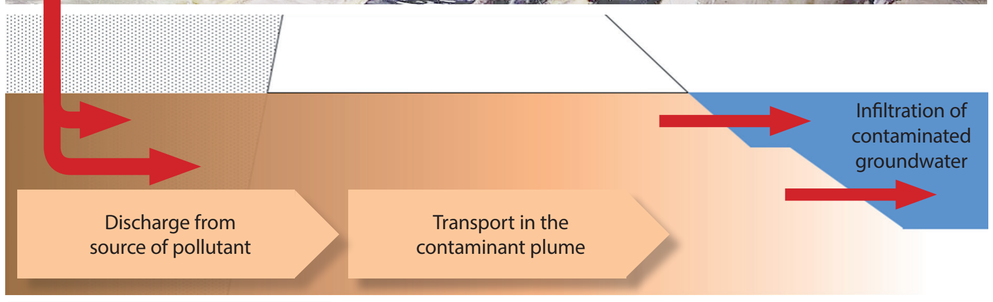
Theresa Albert
T: +49 351 47878 7968
E: t.albert@gicon.de


## process-based laboratory system

BGD ECOSAX GMBH · TECHNISCHE UNIVERSITÄT DRESDEN · IUP. Ingenieure


**Contact:**
Dr. Claus Nitsche
T: +49 351 47878 9801
E: c.nitsche@bgd-ecosax.de

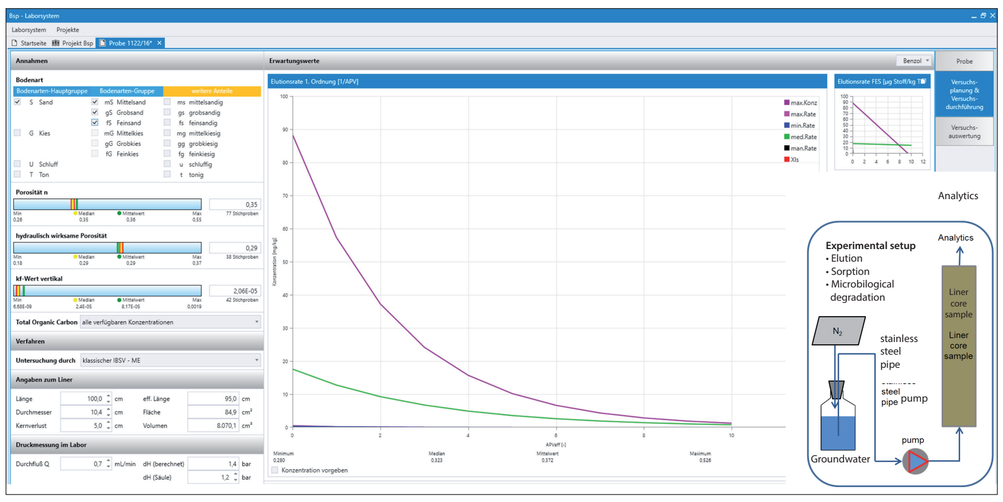
Philipp Dost
T: +49 351 47878 9810
E: p.dost@bgd-ecosax.de


Process-based laboratory system

Which research objective is required? · What do we know about the soil?

Experimental planning? · Soil physics? Organic / inorganic pollutants?




Parameter tool

2.800 parameter values · 1.670 specific values

Groundwater prediction system (GWSimPro)

Reactive solute transport and heat transfer · Analytical solutions

Dual porosity · Forecast? Remediation target?