

The SETAC EMAG workgroup on groundwater monitoring



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- Over the past few years, ground water monitoring has become increasingly important in the EU registration process
 - There is no detailed EU guidance on monitoring studies, only some general information in the FOCUS Ground Water Report
- Several EU regulators worked with SETAC to set up a group to establish scientific recommendations for conducting such studies

SETAC EMAG-Pest GW Members



About 30 specialists comprising regulators, industry,
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Current Structure

- Chaired by Anne Louise Gimsing with an informal steering committee of regulators
- Full committee which meets once or twice a year
- Subgroups which meet by phone more frequently, currently there are two subgroups
 - Document subgroup-prepare the document providing the scientific recommendations on study design
 - Vulnerability subgroup-prepare the section on assessing relative vulnerability of potential monitoring sites

Activities to date

- Workshop in Copenhagen 2015
- Annual presentations at Fresenius conference
- Presentations at the pesticide conferences in Piacenza (2015) and York (2017) and at SETAC Europe in Rome (2018)
- Two day training courses in Nantes 2016 and York 2017
- Very active work on the publication about monitoring studies over the last two years – finalised in summer 2018 and currently under revision

Recommendations for monitoring studies



- To address how to conduct targeted monitoring and how to use public monitoring data
- What is the next step after failing the FOCUS Scenarios
- The document should be a helpful tool for regulators and notifiers to enhance acceptance
- The guidance will **not** be a cook book, there are too many different variables to be considered



Status for publication



- Submitted to Journal of Consumer Protection and Food Safety in July
- Currently the authors are revising the document after commenting from the Journal
- Publication around the beginning of 2019

Content of the publication

Conducting groundwater monitoring studies for their metabolites in the context of Regulation (EC) No 1831/2003

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Types of Ground Water Studies

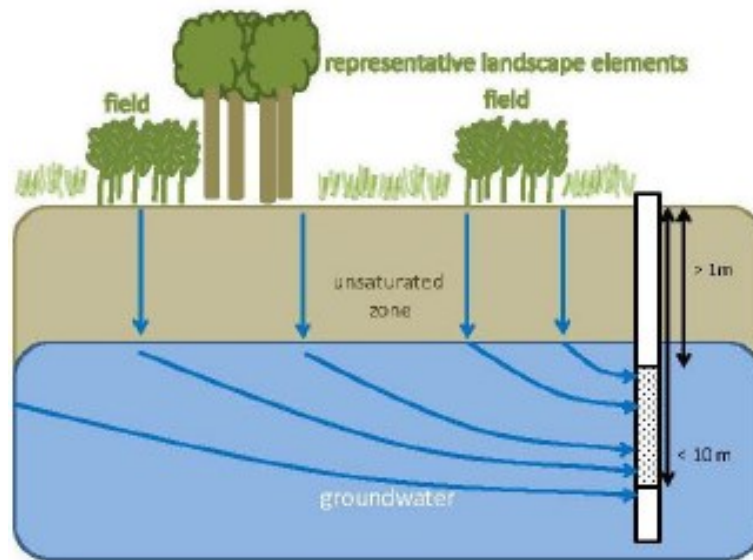


What is a ground water monitoring study?

- Often used to denote any field study in which GW is sampled and analysed
- In the EU a distinction is made between a field leaching study (FOCUS Tier 3) and a ground water monitoring study (FOCUS Tier 4)
- The publication will focus on monitoring studies which usually involves less intensive sampling but at larger number of sites

What to protect?

- There are no defined/common protection goals across the member states, which impacts on the study design
- A total of 7 exposure scenarios were identified as part of a work group at the modelling workshop in Vienna in 2014



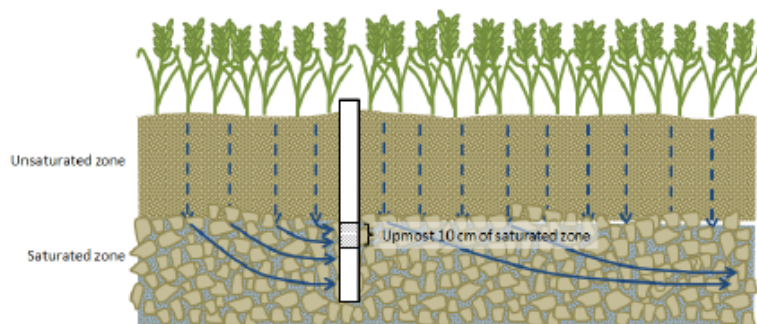
Exposure Scenarios

What to protect?

- The study design will vary depending on the exposure scenario

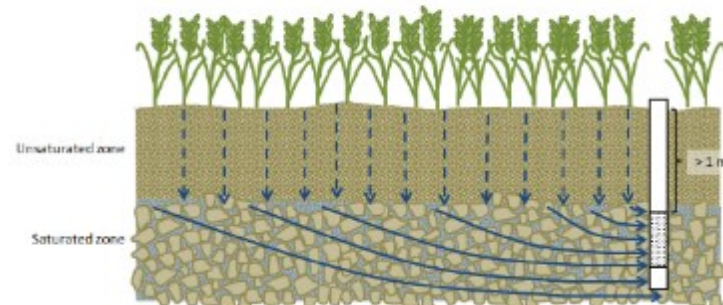
Exposure Assessment Option 1

Concentrations in the upper 10 cm of the saturated zone



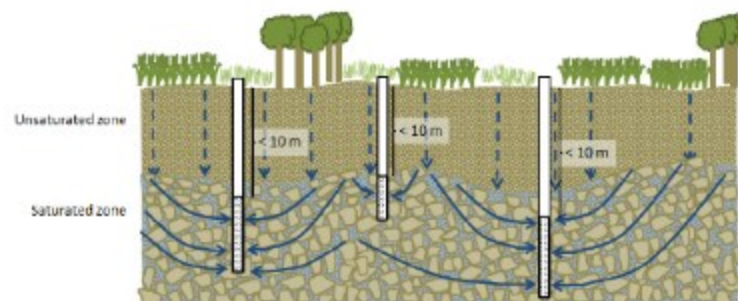
Exposure Assessment Option 2

Concentrations in the upper portion of ground water originating from below treated fields, but not shallower than 1 m below the soil surface



Exposure Assessment Option 6

Concentrations in raw water of a drinking water pumping station using ground water.



Types of Ground Water Studies

Geographical Scale

In-Field and Edge of Field

- Focuses on residues resulting from a single field



Catchment and Aquifer

- Focuses on residues in ground water over a larger use area



Types of Ground Water Studies



Timing with regards to applications

- Prospective ground water study
 - Make an application and follow the movement
- Retrospective ground water study
 - Monitor residues from previous applications
- Some studies are both retrospective and prospective
 - Monitor residues from previous applications and includes subsequent proactive applications

Types of Ground Water Studies

What study design is appropriate?

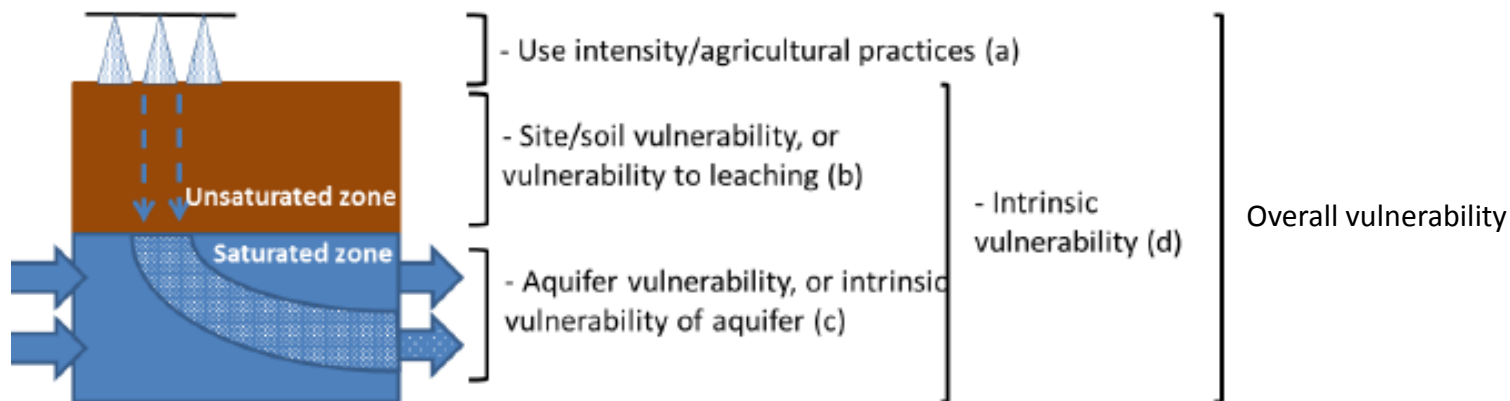
- The publication considers the different study designs and gives a recommendation which may be appropriate for individual exposure scenarios
- BUT... it all depends on the aim of the study, the molecule properties and plenty of other parameters



Vulnerability Assessment

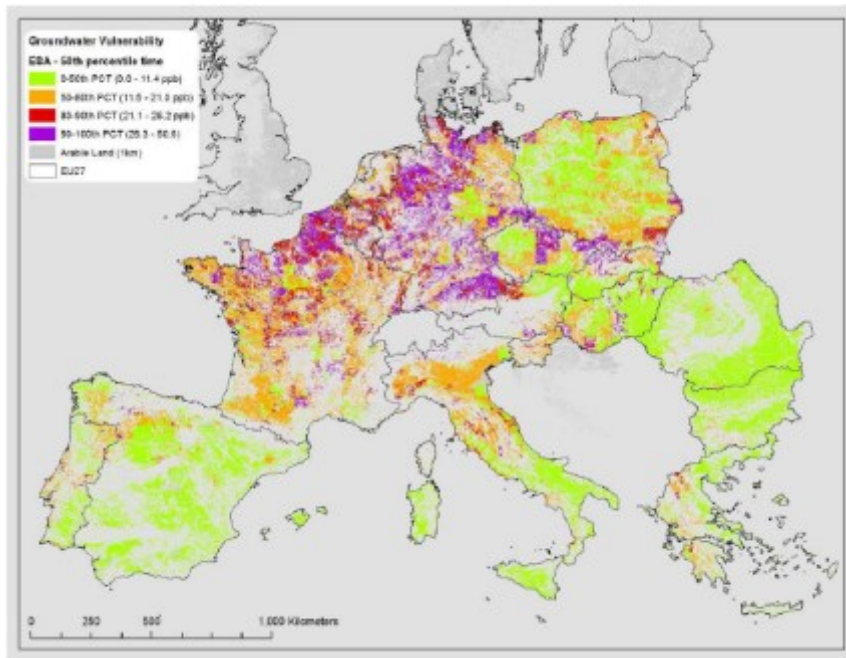
Where to sample?

- Large part of the guidance document relates to how to address site vulnerability, state of the art methods and context setting



Approaches

- Document describes and discusses the main vulnerability approaches
 - Index-based
 - Process-based
 - Statistical
- Identifies strength and weaknesses
- Discussion on different geoinformation sources (scale and quality)



Other topics of the document

- Sampling frequency
- Data quality criteria / GLP
- Installation of wells
- Selection of existing monitoring sites
- Collection of samples, handling, storage
- Analysis of samples

Other topics of the document

- Hydrogeological characterisation
- How to deal with concentration data (averages or not)
- Reporting
- How to deal with data from public monitoring
- Factors other than leaching that may result in residue detects
- Examples of ongoing and completed monitoring studies

The End

**Thanks to the EMAG-GW group
and
Thank you for your attention**

