

Objectives for Inverse Modelling

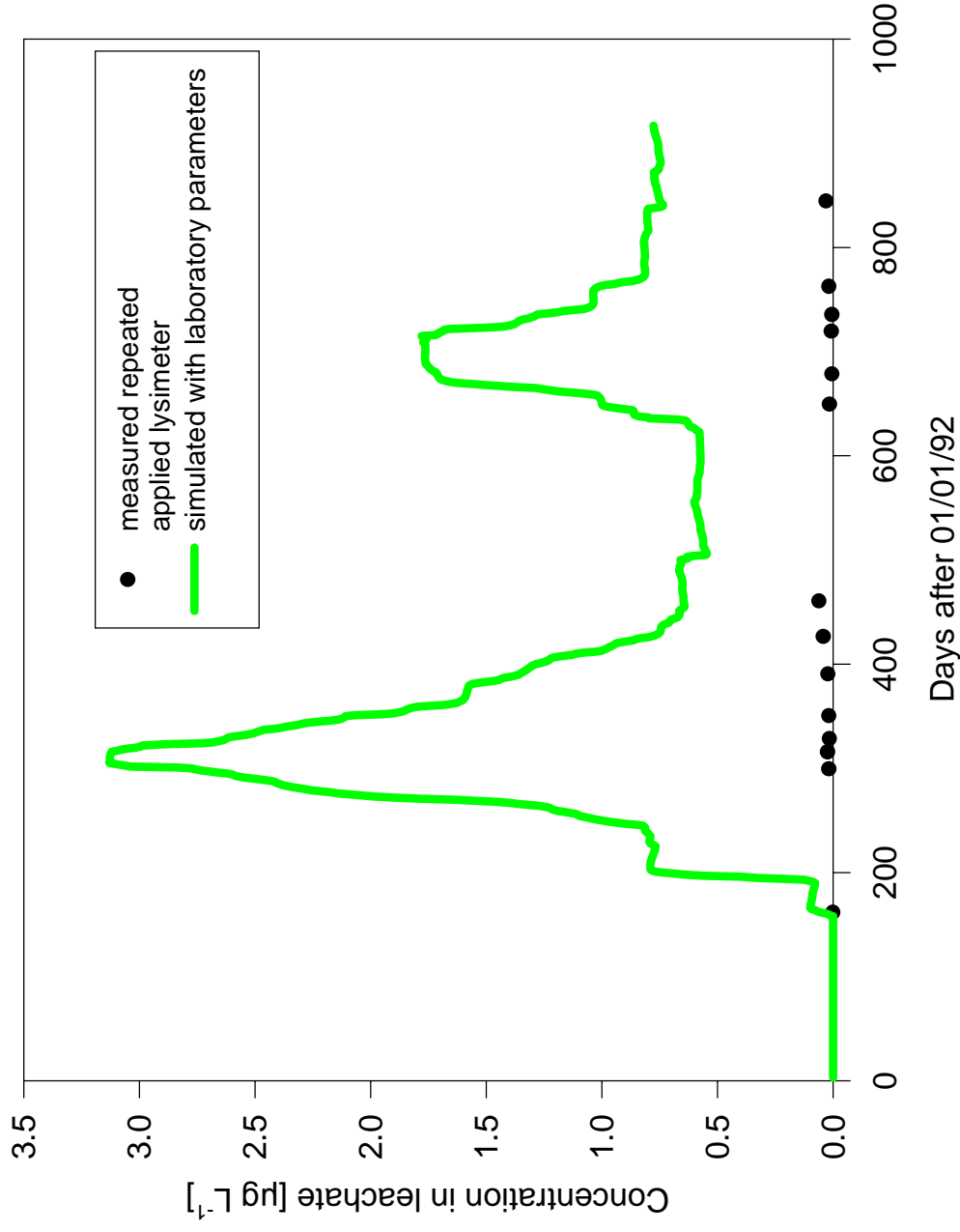
Bernhard Gottesbüren (BASF)

Introduction and Objectives for the Workshop on Inverse Modelling

Mismatch between measured and simulated concentrations
Scientific, commercial and regulatory dilemma
Vision and Objectives

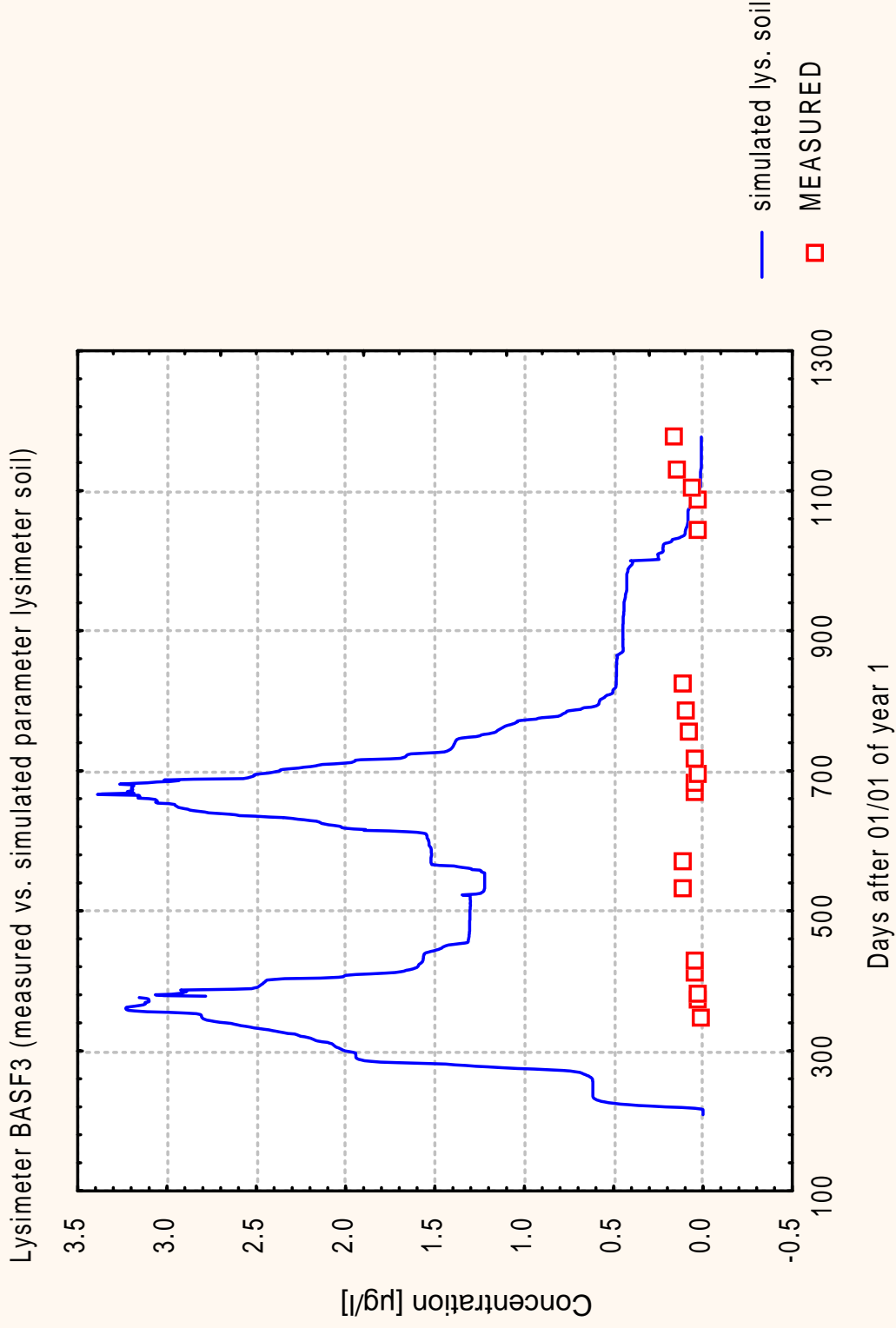
Objectives for Inverse Modelling

Mismatch of Measurements + Simulations (1)



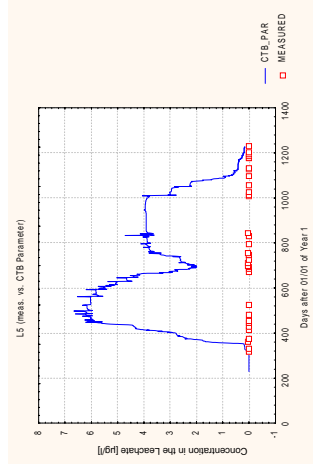
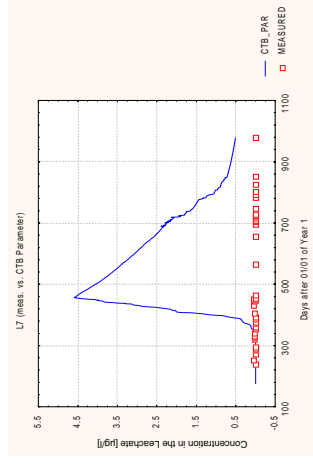
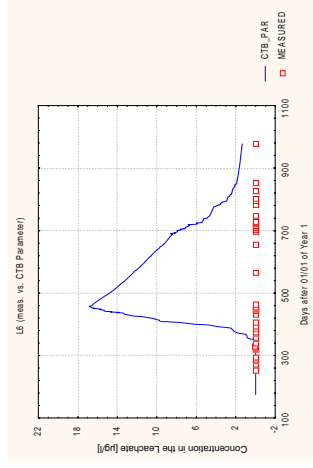
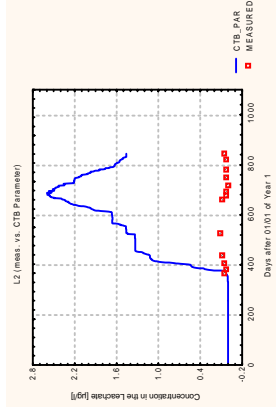
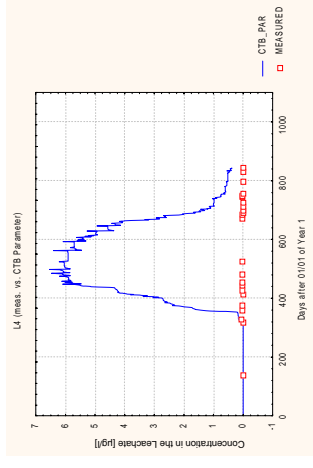
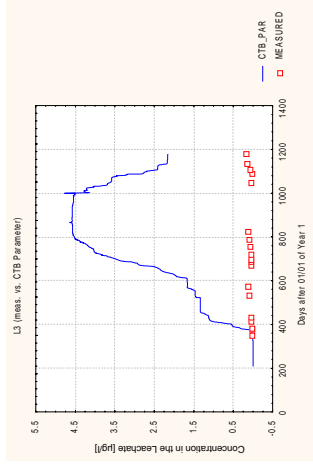
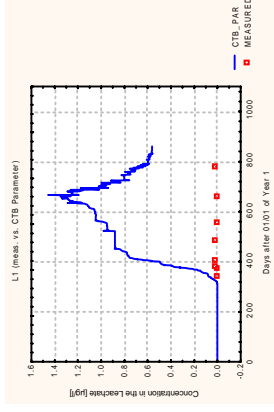
Objectives for Inverse Modelling

Mismatch of Measurements + Simulations (2)



Objectives for Inverse Modelling

Mismatch of Measurements + Simulations (3)



Resume: Simulations

**Huge Discrepancies between
measured and simulates
concentrations especially
in lysimeter leachate
(even if DT50 + KOM from same soil)**



**Dilemmata
from different points of view**

- scientific**
- commercial**
- regulatory**

Objectives for Inverse Modelling

1) Scientific Dilemma

1) Do we really understand the processes?

2) Are our models wrong?

3) Do we have scale up problems?

4) Are the type of leaching studies wrong?

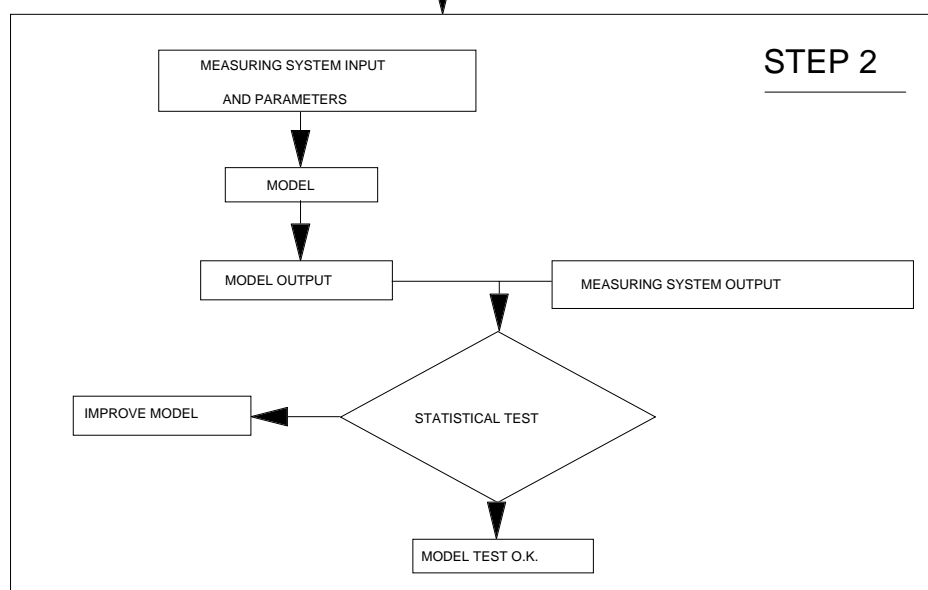
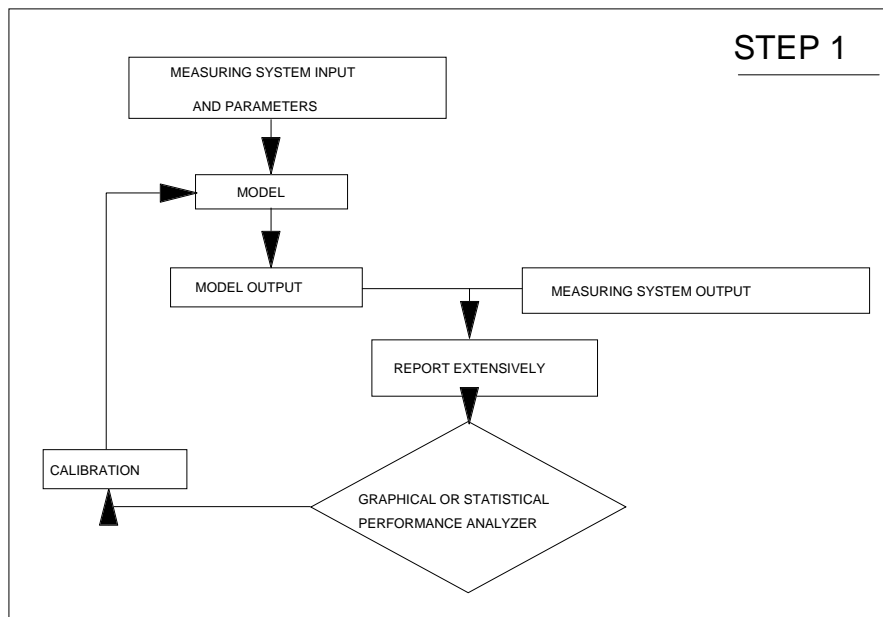
5) Are the parameter values wrong?

6) Do we determine correct DT50+KOM?

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Parameter Estimation:

Flow chart for evaluating pesticide leaching models in COST Action 66



Objectives for Inverse Modelling

Commercial Dilemma

- 1) Perform some expensive high tier leaching experiments or**
- 2) be regulated on unrealistic predictions**

•
Be aware that 1) does not guarantee a registration in all European countries because

- results may exceed trigger values (not pesticide properties only but also due to specific circumstances of the study)

- results may be below triggers but results are not accepted by some authorities as study type/conditions are considered of being not representative

or not worst case enough

or only model calculations are accepted

or . . .

Regulatory Dilemma

1. Is something wrong with the regulatory assessment scheme ?

2. How to assess leaching studies that are performed under conditions not relevant or not worst case enough for our country/regions?

Too worst case -> our farmers

loose safe products

**Not worst enough -> No safe use for
Groundwater quality
under our conditions**

3. Mutual recognition of studies

- between EU countries

- between EU and US

4. EU Registration

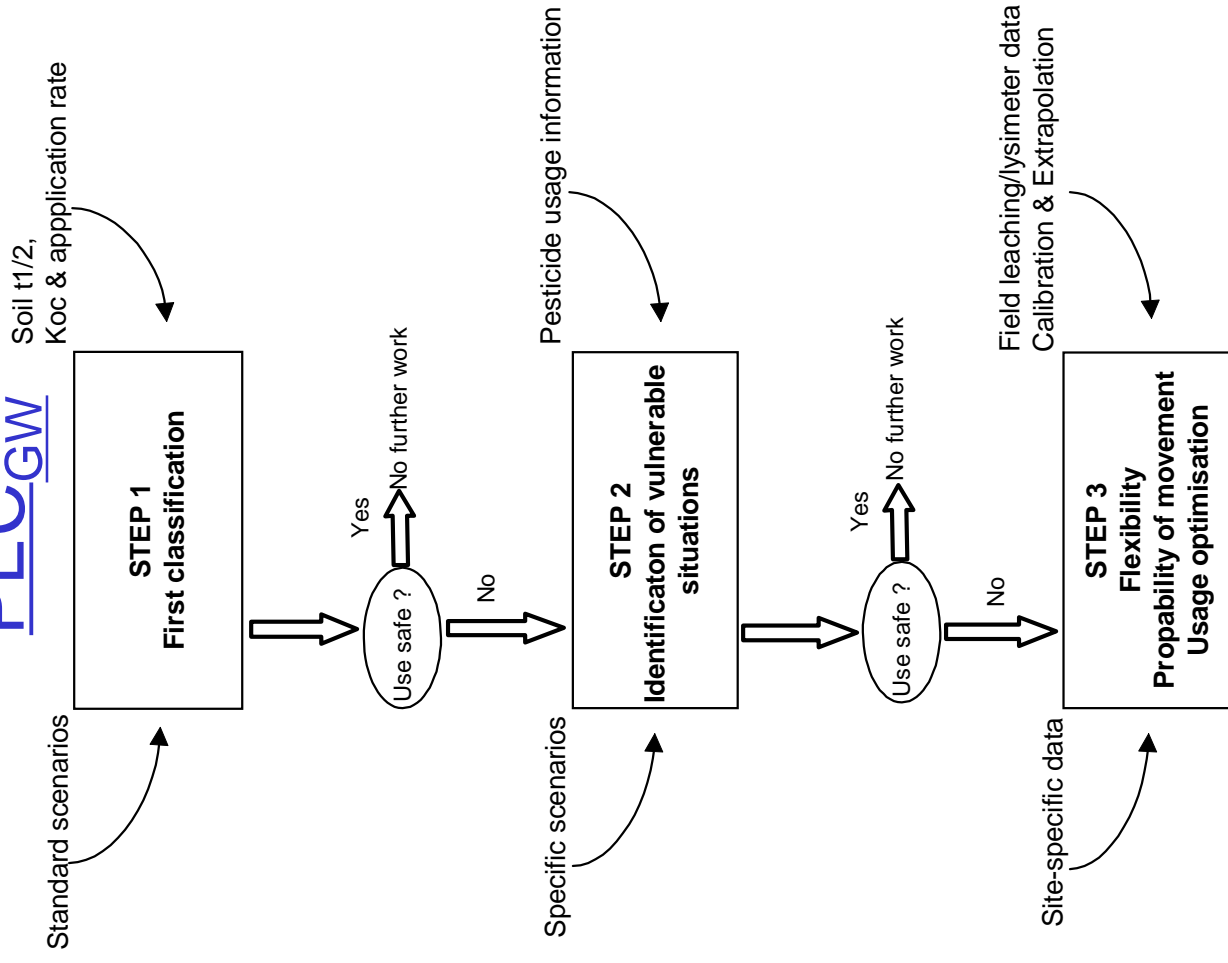
How to perform in practice

FOCUSgw Tier 3 ?

**(calibration and extrapolation of
lysimeter/field leaching studies)**

Tiered Approach for Calculation of

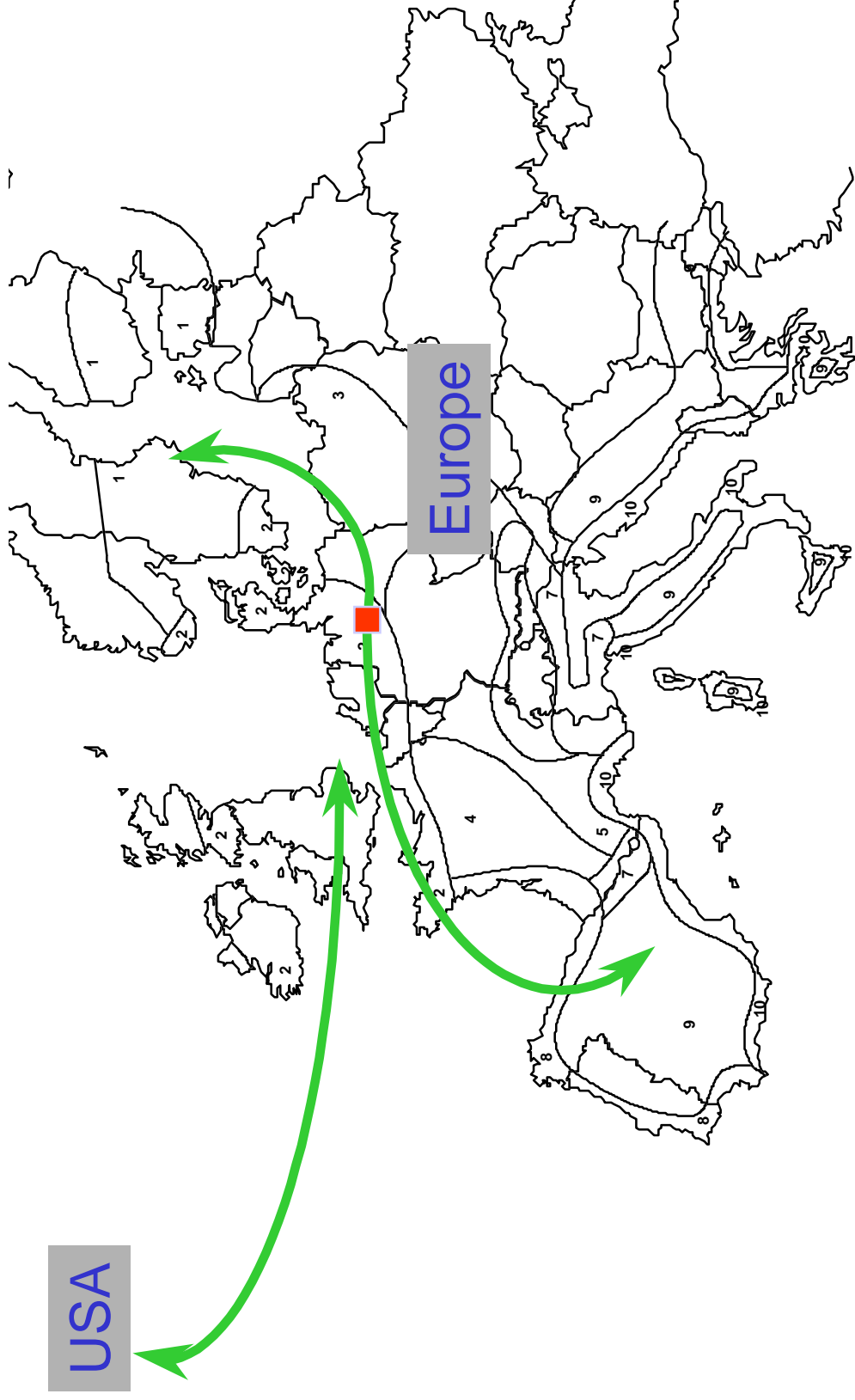
PEC_{GW}



Increasing complexity
and
'realistic assumptions'



Transfer of 'local' results
to different climatic zones



Workshop on inverse modelling, 9th /10TH May 2000, Research Center Jülich (Germany)

Scope of the Workshop

It is the intention to broaden the discussion and invite interested individuals from research institutes, industry and regulatory authorities from different European countries.

The Workshop on Inverse Modelling in 2000 should cover scientific and regulatory aspects with the following topics:

- 1.) recent research and practical experiences
with inverse modelling
- 2.) current status and expected development with
the use of inverse modelling in the registration of pesticides