Konzept zur flächenhaften Anwendung von Soil-Vegetation-Atmosphere-Transfer (SVAT) Modellen

Concept for regional use of soil-vegetation-atmosphere-transfer (SVAT) models

A. Heuer, M. Casper (University of Trier, Germany)

Problem

→ SVAT models

→ one-dimensional, plot scale

Aims

(A) **mesoscale / macroscale model approach**

Remote Sensing: *concept regionalisation, integration remote sensing data → model*

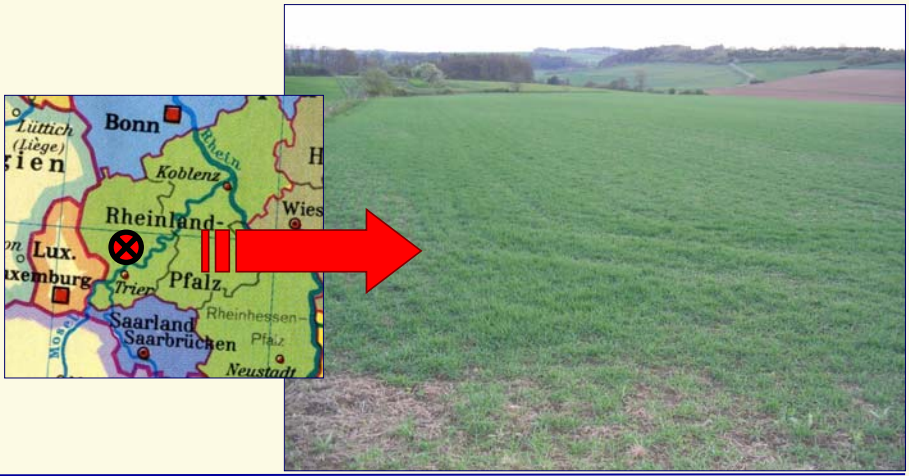
SVAT Model: *process-related illustration of system soil – vegetation – atmosphere*

scale-independent prognostic simulations

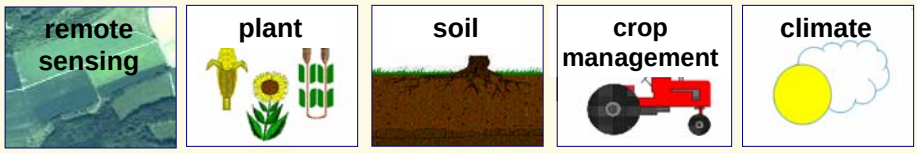
(B) **effect of increasing levels of model abstraction**

Method: Testsite (plot scale)

Location: W-Germany, Rhineland-Palatinate



Method: Data (plot scale)



db

- pedogenic stratification of the testsite
- parameterizing the SVAT models

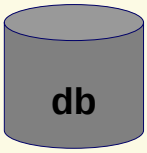
Method: Remote Sensing (plot scale)

db

- fusion of multispectral, hyperspectral and spectroradiometric data
- data transformation and classification
- **identification of valid patterns**

- validation at plot scale: „modelled“ ←→ „measured“

Method: SVAT Model (plot scale)



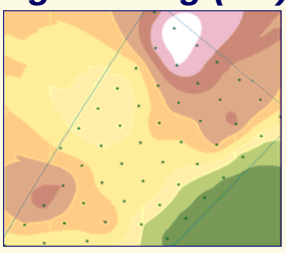
- 1-D-simulation for each rasterpoint
- analysing the results (statistics, GIS)
- process knowledge and mapping
- **detecting „homogeneous“ spatial patterns**

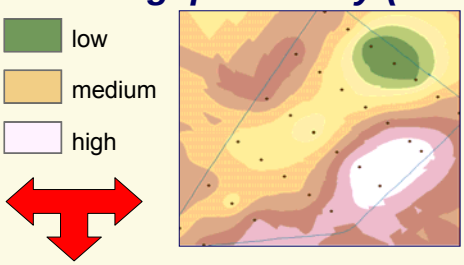
- validation at plot scale: „modelled“ ←→ „measured“

Method: cross validation (plot scale)

(A) linking spatial patches: RS & SVAT Model

e.g. Canorg (RS) ***e.g. profundity (Model)***

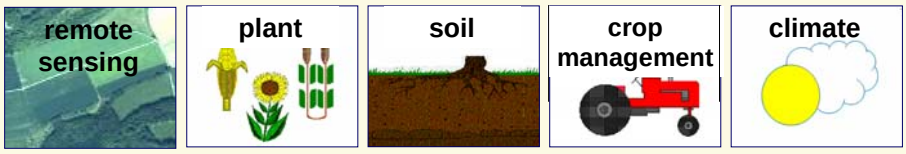


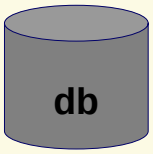


essential data for spatial discretisation

(B) basic condition for upscaling (regionalisation)

Method: Regionalisation





- remote sensing based stratification (meso- and macroscale)
- 1-D simulation for each valid pattern
- model validation at meso/macroscale

Method: Summary

I. a-priori information from remote sensing data
II. stratification of the testsite
III. tracing two-dimensional differences („patterns“)
IV. validation: „modelled“ ←→ „measured“
V. filtering essential data for spatial discretisation
VI. upscaling to meso- or macroscale
VII. evaluation model and evaluation method

scale-independent prognostic simulations

THANK YOU FOR YOUR ATTENTION !

for more information please contact:

heuer@uni-trier.de