

Design Pattern Enabling the Flexible Integration of Effects into a Basis Flow Model

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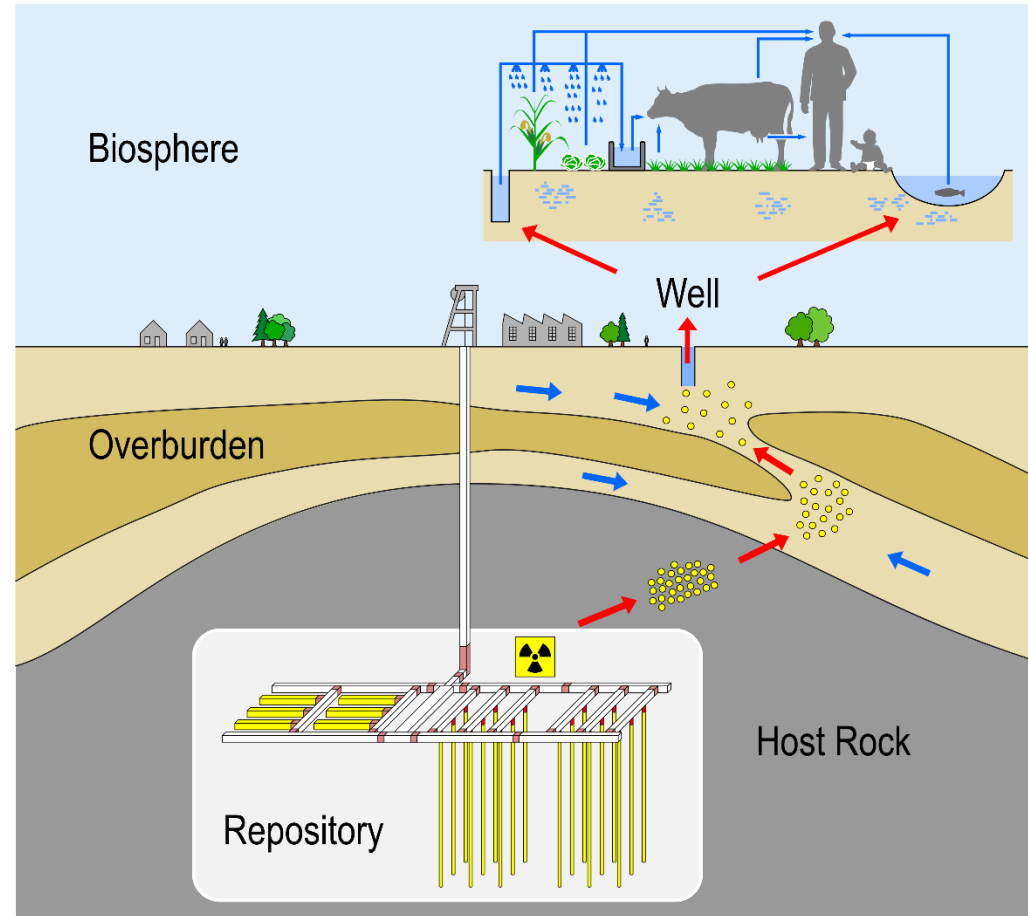
InterPore, May 15, 2018, New Orleans, USA

Motivation

RepoTREND – program package for simulation of processes in a final repository for radioactive waste in a deep geological formation (is being developed and applied by GRS).

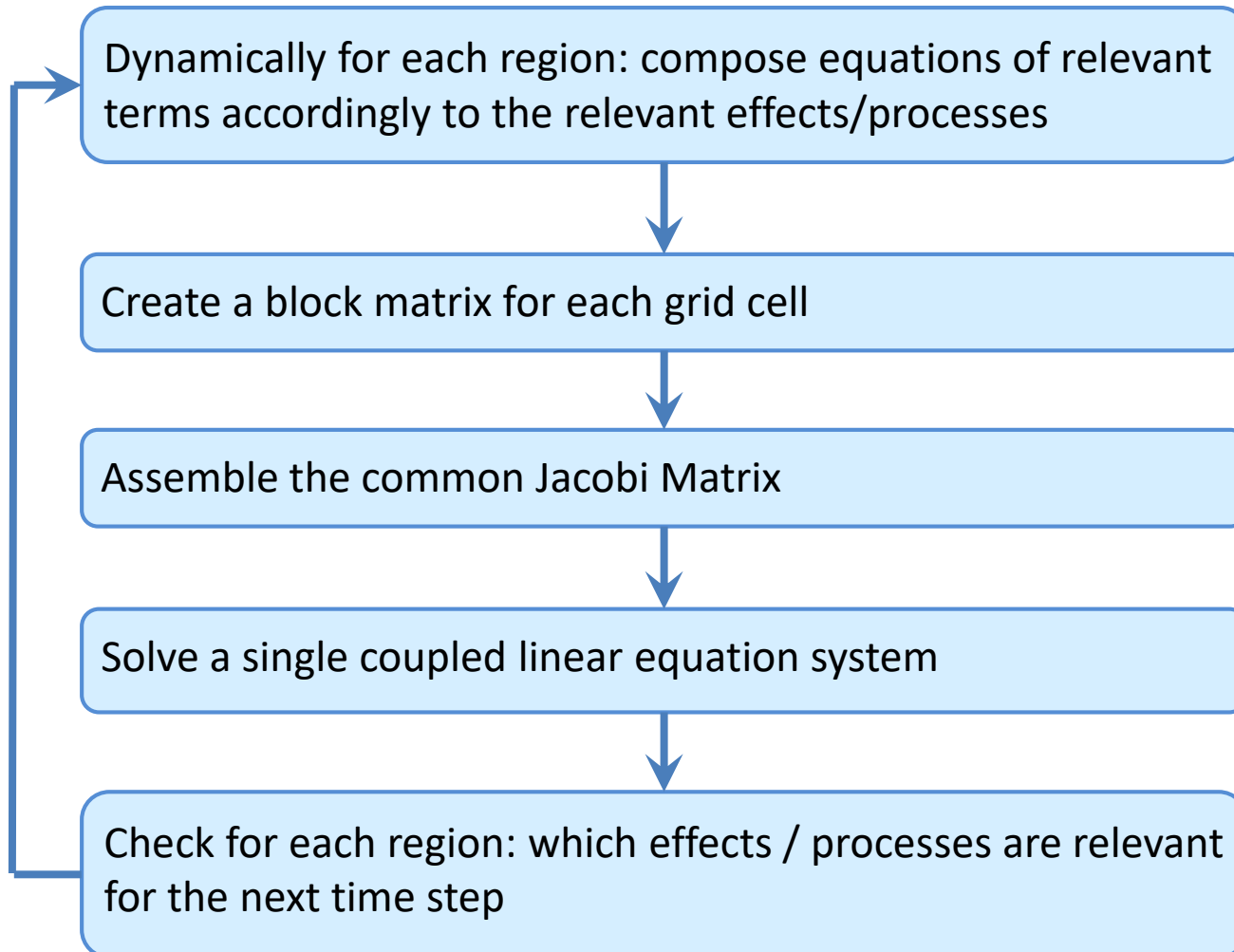
Specific problems:

- The model area is extremely heterogeneous.
- Numerous different effects have to be considered in addition to the basic process (two phase flow).
- The relevance of effects can change during a simulation.



Approaches and Software Design: RepoTREND as a Framework

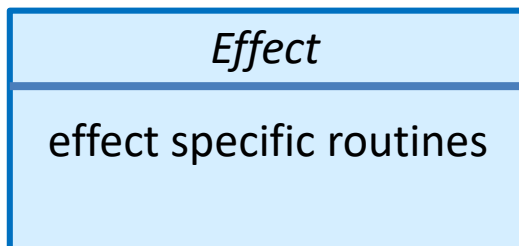
General Workflow:



Approaches and Software Design

- Specific challenges in developing the structure of a simulator program are
 - to enable a flexible choice of effects for different regions of the modeled area,
 - their combination during a simulation,
 - an easy way to extend the program by new effects,
 - transparency and easy maintainability.
- Efficient program structure: separate “effect specific” and “interaction of effects”

Library of *Effects*



Library of *Experts*

