

WP5 expectations based on WP1

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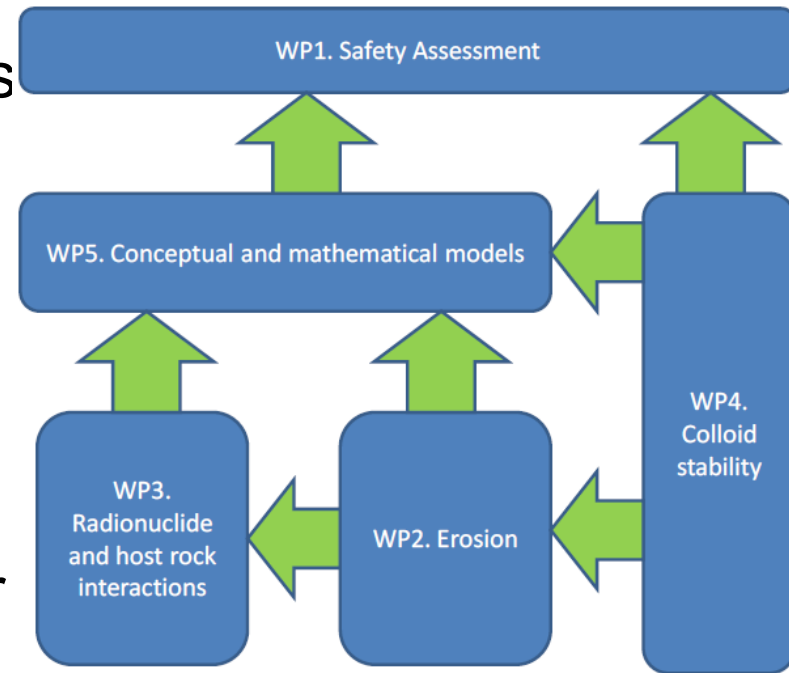


WP5 expectations based on WP1

- **Validate and advance the models used for predictions**

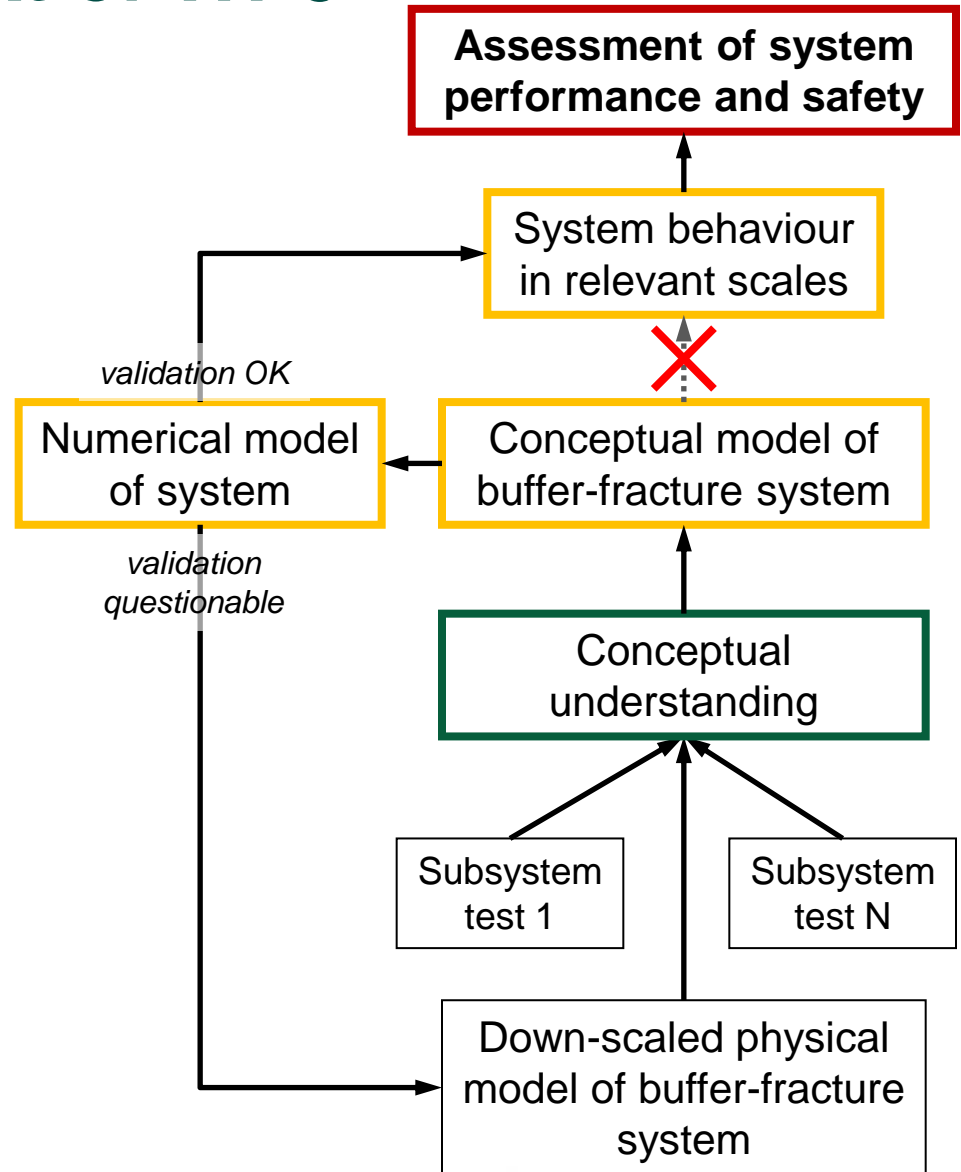
- 1) mass loss of clay in dilute waters and clay colloids generation in special and
- 2) clay colloids facilitated radionuclide transport.

- **Formulate data needs from other WP's**



A view to the context of WP5

- Elaborated guidelines for performance and safety assessments
- Scaling principles
- Validation of numerically implemented conceptual process models
 - with relevant material data and boundary conditions
- Elaborated conceptual process models
- More and systematic empirical evidencies



WP5 expected outcomes

- Conceptual models
 - reason dominant processes,
 - identify and reason relevant parameters and
 - articulate the data needed to implement new aspects.

- Mathematical and numerical models
 - validate models by predicting the data obtained from WP2-4 and the likes
 - implement new features arising from elaborated conceptual models

Some actual WP5 outcomes

- Conceptual models
 - reason dominant processes,
 - identify and reason relevant parameters and
 - articulate the data needed to implement new aspects.
 - ⇒ **swelling (or penetration into fracture)**
 - ⇒ **gravity driven mass loss**
 - ⇒ **accessory mineral dynamics**
 - ⇒ **mass release and floc formation**
 - ⇒ **co-volume fraction –concept**
 - ⇒ **variable fracture aperture**
- Mathematical and numerical models
 - validate models by predicting the data obtained from WP2-4 and the likes
 - implement new features arising from elaborated conceptual models
 - ⇒ **resulted in formulating and assessing a benchmark case**

Past, ongoing, and future activities

- Conceptual models
 - review the data
 - for penetration and erosion for Na-montmorillonite (Chris' tests)
 - related to the strength of structure at the rim
 - simulate the benchmark test
 - simulate the Jyväskylä swelling test
 - run new extended (in time) extrusion test???
- Mathematical and numerical models
 - sedimentation of small and large flocs
 - 3D liquid flow and transport of colloids
 - scaling: geometric, dynamic and chemical

WP5 deliverables

List of Deliverables					
Del #	Deliverable name	Responsible Organisation	Nature	Dissemination Level	Due date (Month)
Work package 5					
D5.1	Description of conceptual models and the related mathematical models to support D1.1	Posiva	D1.1: Summary of current state-of-the-art regarding treatment of colloids and related issues in the long-term safety case		
D5.2	Progress report of model validation results and model development	Posiva	R	RE	24
D5.3	Synthesis report of model development and validations to support and to be referred to in D1.4	Posiva	D1.4: Synthesis Report: colloids and related issues in the long term safety case		

Kiitos
Thank you

