

# visualkarsys

A webtool for building and communicating 3D geological models

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# visualkarsys.com: ~~a low cost~~... a no cost modelling software!

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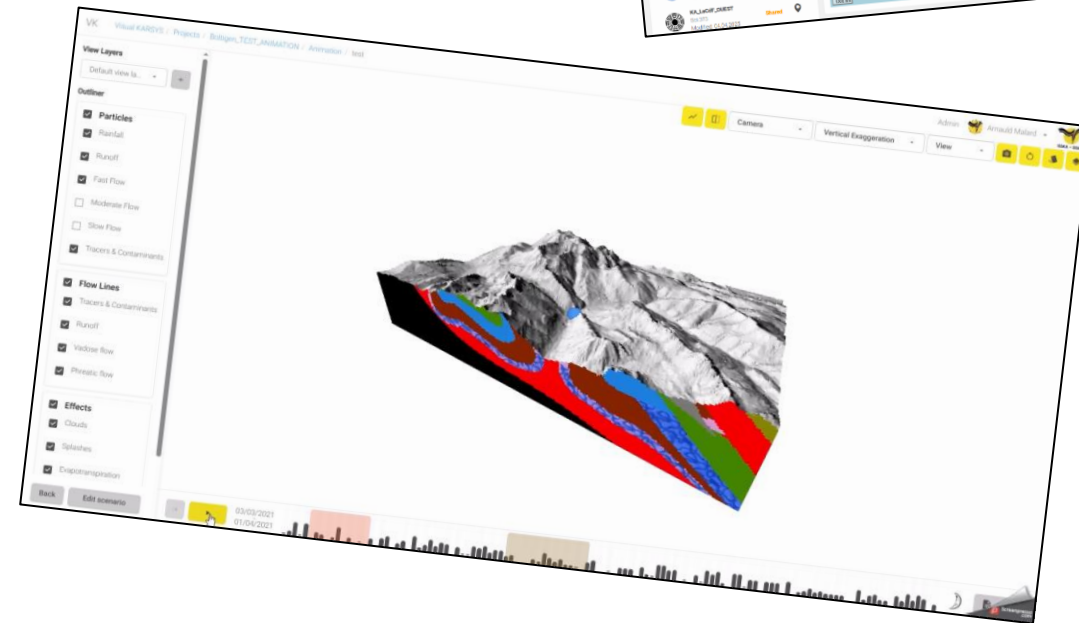
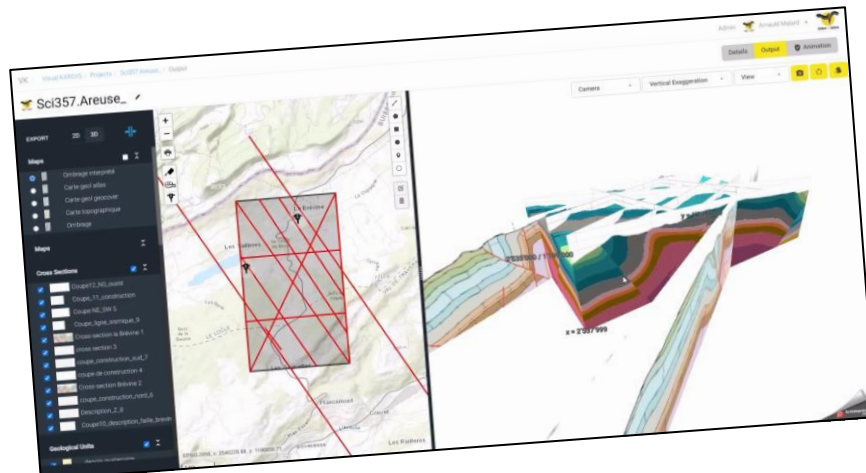
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## What is visualkarsys?

- A free webtool (no subscription, no money!)
- Allows online 3D geological modelling
- Provides functionalities for hydrogeological interpretations
- Allows viewing and sharing models via permissions (no 3<sup>rd</sup>-software required)



# visualkarsys.com: ~~a small~~ ...a growing community!

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## Who is the tool for?

- Geologists, hydrogeologists working for small to medium companies
- Authorities, Development agencies, humanitarian NGOs
- Universities, students
- Amateur geoscientists
- > 1700 users




## Consulting



## Education



 visualkarsys.com  
#3D geology  
#education

## Hobby



 visualkarsys.com

# visualkarsys.com: ~~a few~~ ... a lot of functionalities!

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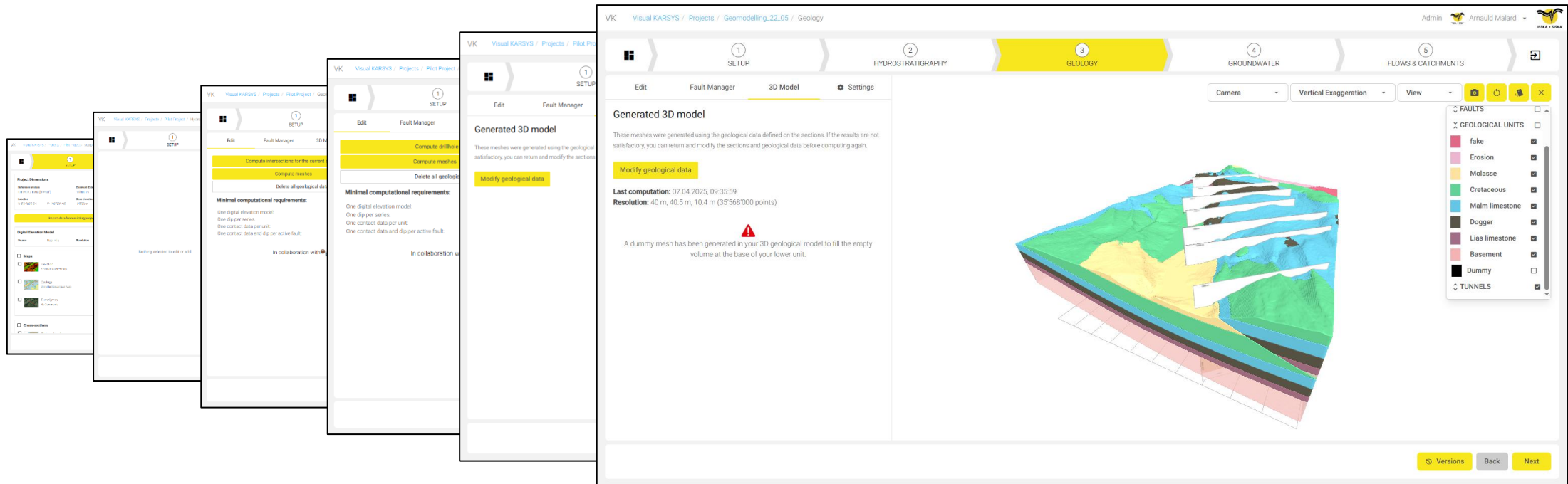
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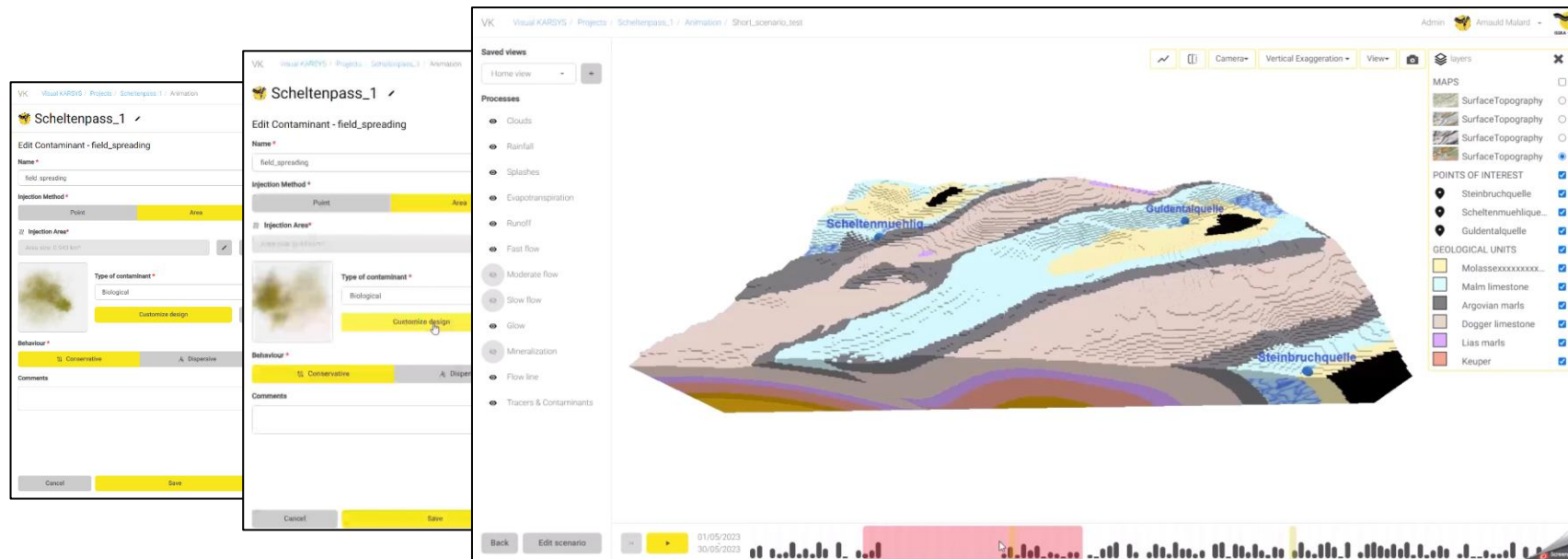
## How does that work?

- Step-by-step approach (setup -> series / units / faults creation -> picking data -> running models)
- Modeling via implicit approach (GmLib, brgm)
- Iterative process (back and forth)



## Flow animation module: from 3D to 4D!

- Dynamic flows visualization (from rainfall to springs)
- Allows users to reproduce / forecast dye-tracer tests
- Allows users to test contamination scenarios (substances spreading or point-pollution)





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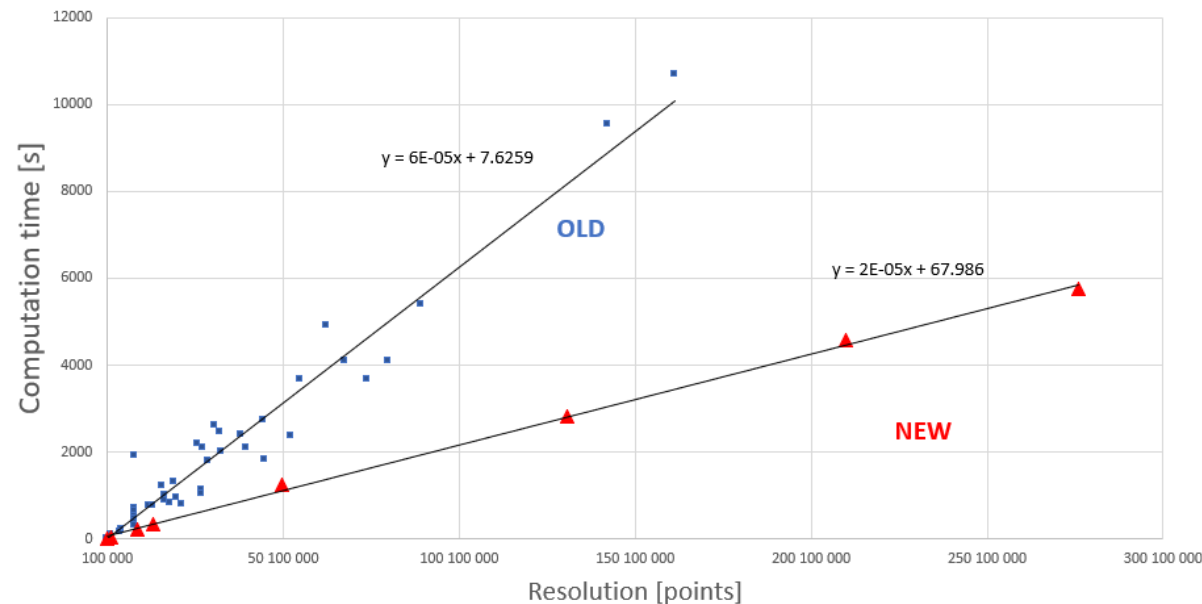
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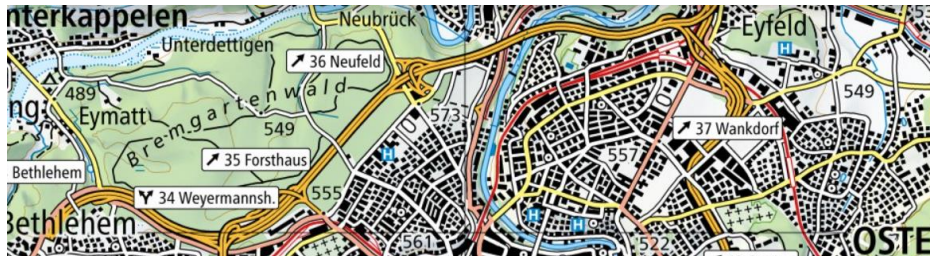
## Faster computation

- Increase stability
- Reduce calculation time by a factor of 3 to 4
- Faster application loading



## Metaprojects: dealing with scales and imbricated projects

- Scale issues with geological models...



swisstopo



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How to manage scales and models of various sizes within projects?

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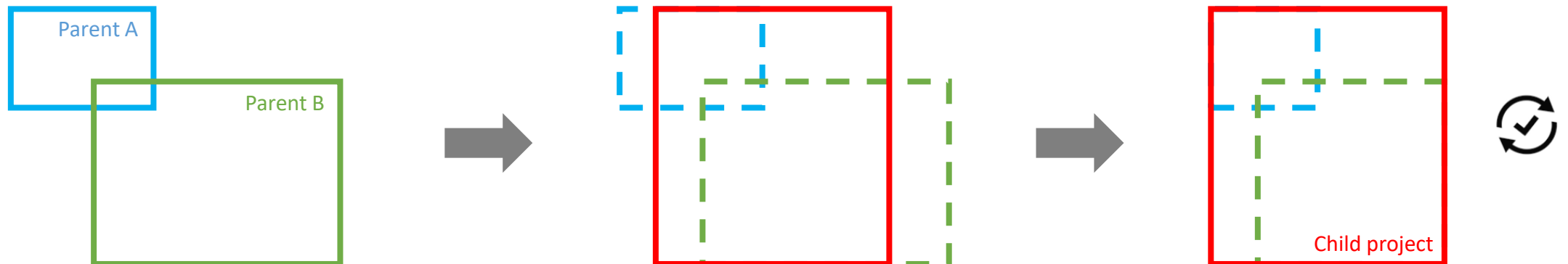
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## Metaprojects: Use data to the max, don't redo the job!

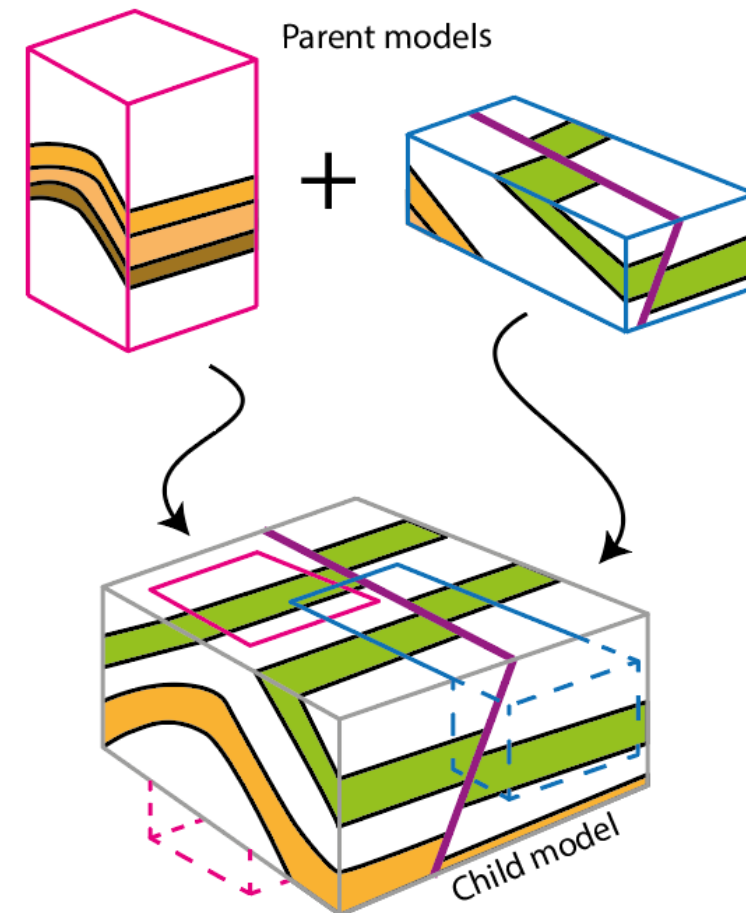
- Reuse geological data from projects to projects (upsale / downscale)
- Synchronize data across projects
- Replicate data changes from project to project





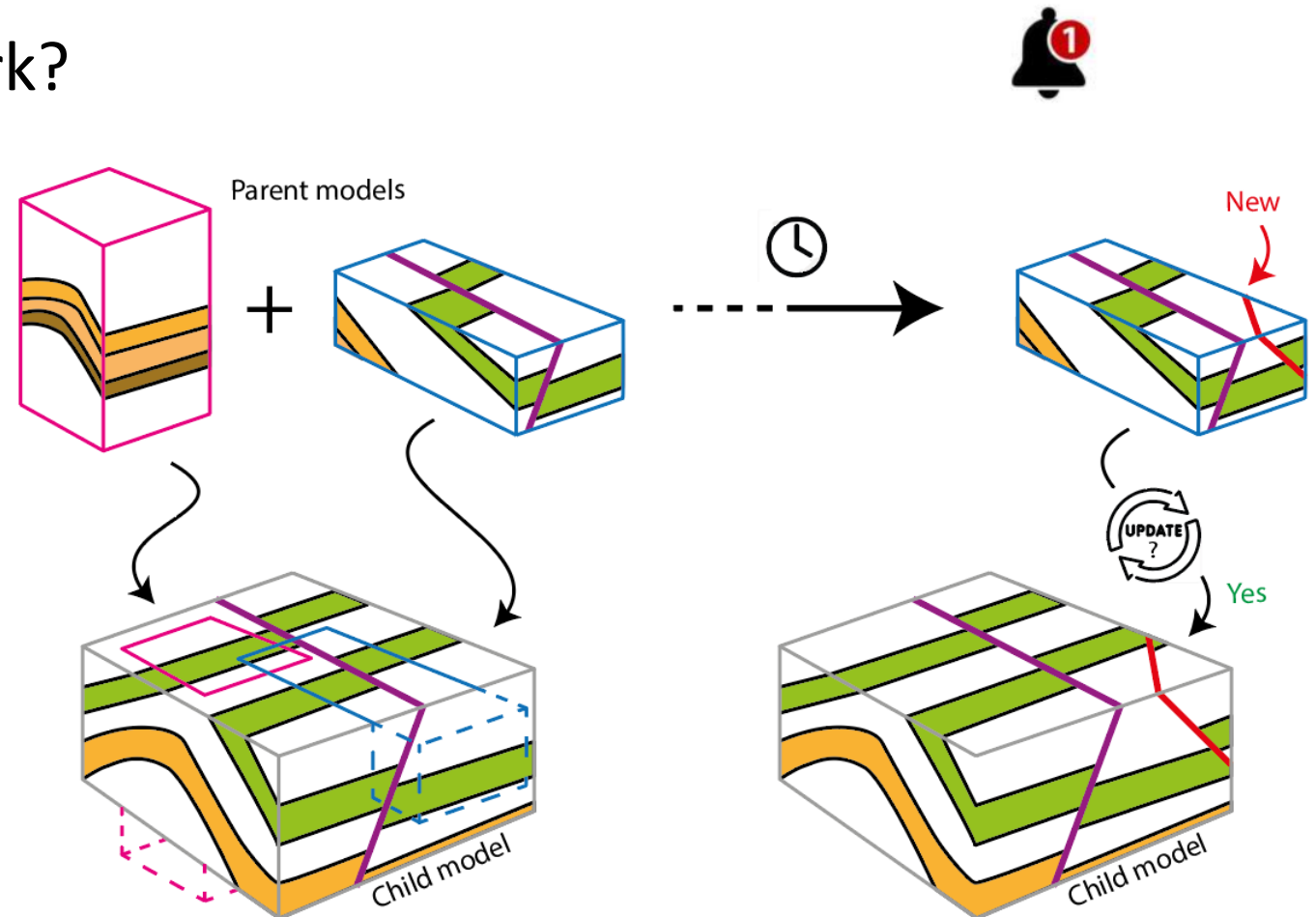
## Metaprojects: how does it work?

- Design the «child» model extension
- Select the «parent» models
- Reorganize the lithological series / unit
- Select / merge faults
- Transfer geodata
- Add geodata
- Run the model!



## Metaprojects: how does it work?

- Models are «linked»
- Changes in parent models are notified to the child model
- The child model might decide to replicate the change or to «unlink» the data
- The data traceability is kept
- Child models can be reused as parent models for another child model, etc.



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## **GeoCruncher:** an open-source hub for online geoprocessing

- Standalone application (dissociated from VK)
- Distribute different kind of jobs (implicit modelling, voxels, meshing, etc.)
- Support python and C++ jobs
- Manage requests to the queue
- Inform on job status during computation
- Adaptable to your needs



<https://github.com/ISSKA/geocruncher>

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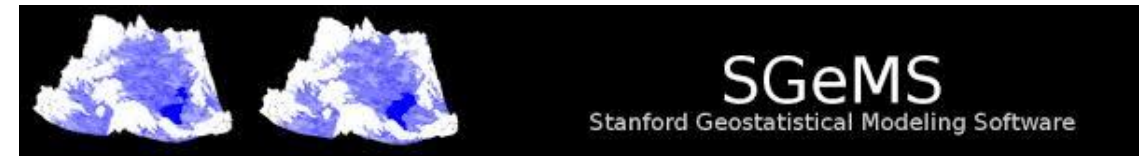
## **GemPy:** support more implicit libraries for modeling

- Offer users the opportunity to choose “their” geological modeler



## **Uncertainties:** providing basic indicators for assessing the consistency/relevance of models.

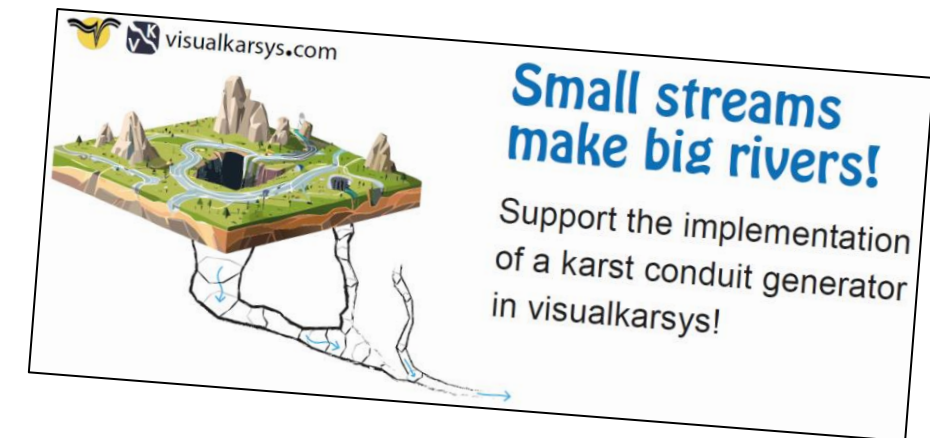
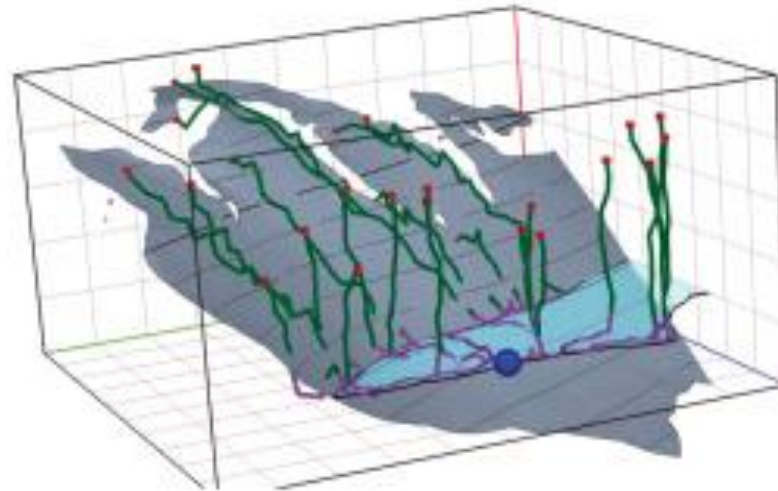
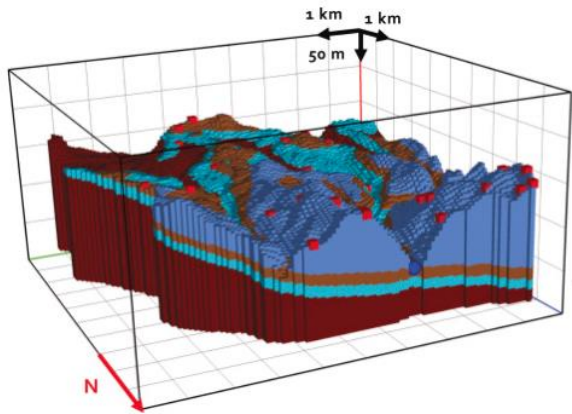
- Density / data distribution
- Data quality



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## KarstNSim: allows users to model 3D karst network

- Generate karst conduits based on geology + hydrogeological conditions
- Looking for funds!





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## Visualkarsys: always something new!

- New features added regularly
- Bug fixes
- Courses to help you discover the application
- News published on LinkedIn

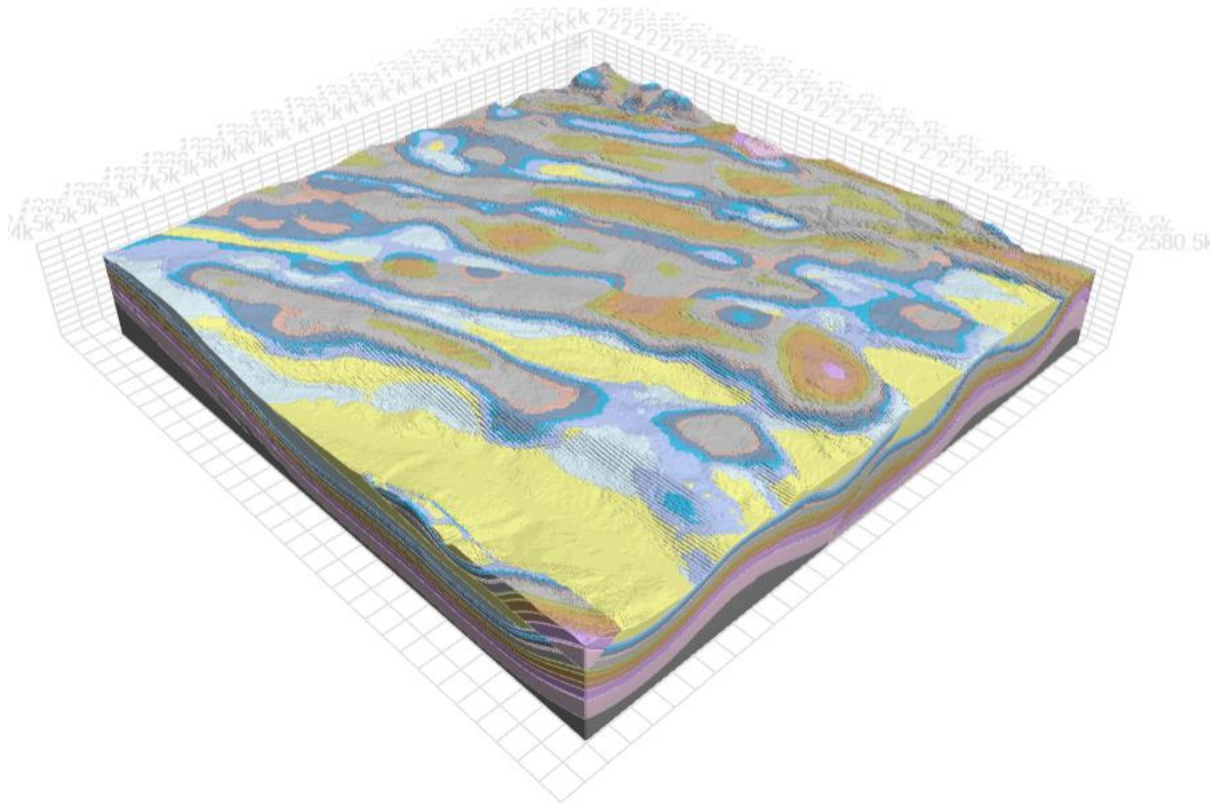


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## Experimental visualisation of the visualKarsys Saignelegier project

### LAYERS



- ☒  Miocène (m.)
- ☒  Tithonien (j7.)
- ☒  Kimméridgien sup. (j6.)
- ☒  Kimméridgien inf. (j5c-6aR)
- ☒  Séquanien inf. (j5c2-6aM)
- ☒  Oxfordien sup. (j5c1.)
- ☒  Oxfordien inf. (j5a-b.)
- ☒  Callovien (j4.)
- ☒  Bathonien (j3.)
- ☒  Bajocien (j2a-b.)
- ☒  Aalénien (j1.)
- ☒  Lias (l.)
- ☒  Trias (t.)
- ☒  Basement
- ☐  Faults

visualkarsys.com: thank you

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**See you soon on visualkarsys!**



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