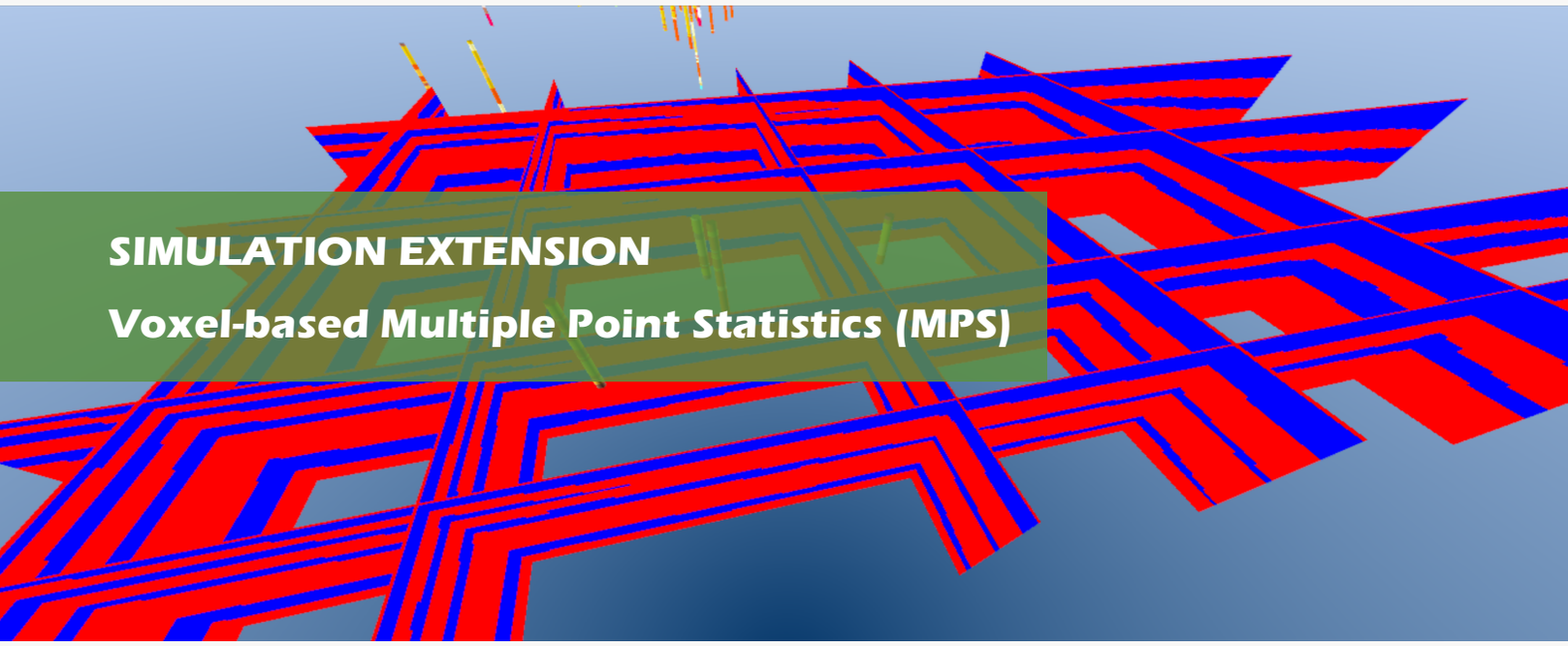
GEOScene3D



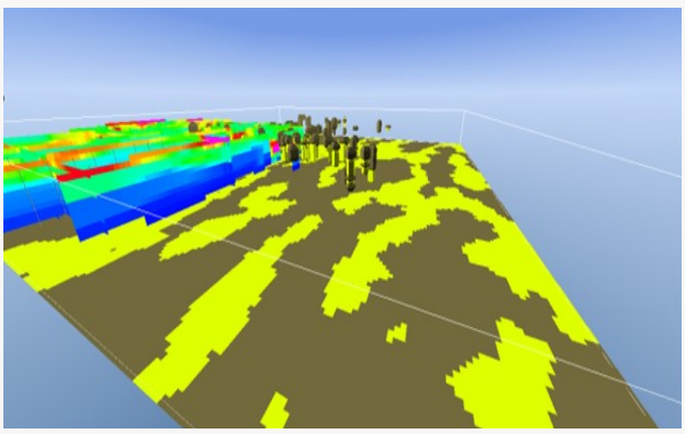
SIMULATION EXTENSION

Voxel-based Multiple Point Statistics (MPS)

A New Implementation of MPS

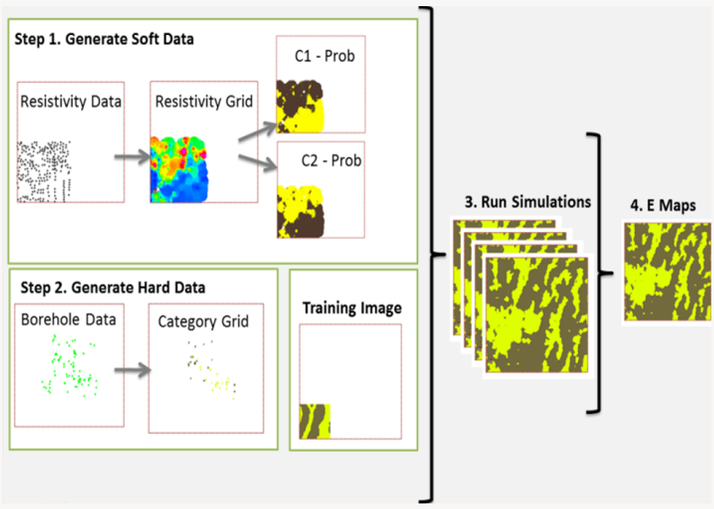
In this Simulation Extension, GeoScene3D utilizes and extends a new implementation of MPS algorithms developed in cooperation I•GIS and researchers at the Niels-Bohr Institute, University of Copenhagen and the Danish Geological Survey (GEUS), as part of the Danish geological modeling research project, ERGO.

The Simulation Extension adds extra functionality to the Voxel Builder Module in GeoScene3D, giving access to Multiple Point Statistics for property simulation i voxel models. These tools provide you with the functionality for working with the latest advancements in geological modeling, all wrapped up in a sequence of user friendly software Wizards, guiding you through the modeling workflow.



Multiple Point Statistics

MPS provides a statistical approach to modeling the geological heterogeneity observed within rock type variations. It is an alternative to Gaussian-based geostatistics with semi-variograms, and instead relies on geological knowledge captured in user-defined Training Images (TIs). TIs help quantify expert knowledge about the shape, proportion and transitions between various geological features. The TI is used together with geophysical and borehole information to model a suite of geologically-realistic rock-type models. The GeoScene3D Simulation Extension implementation of MPS both allows modeling of rock -type heterogeneities and characterization of geological uncertainty within these distributions.



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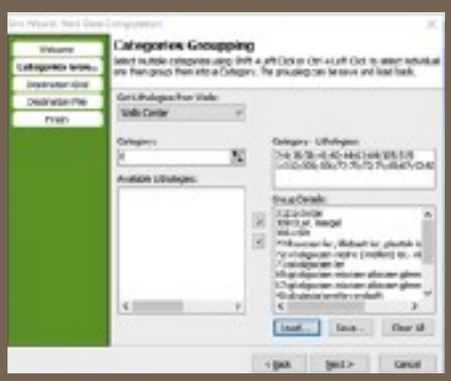
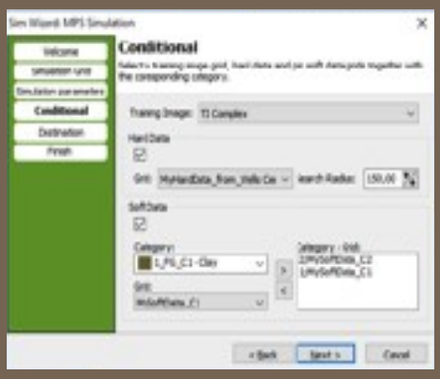
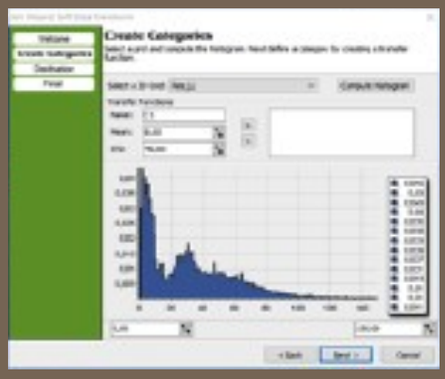


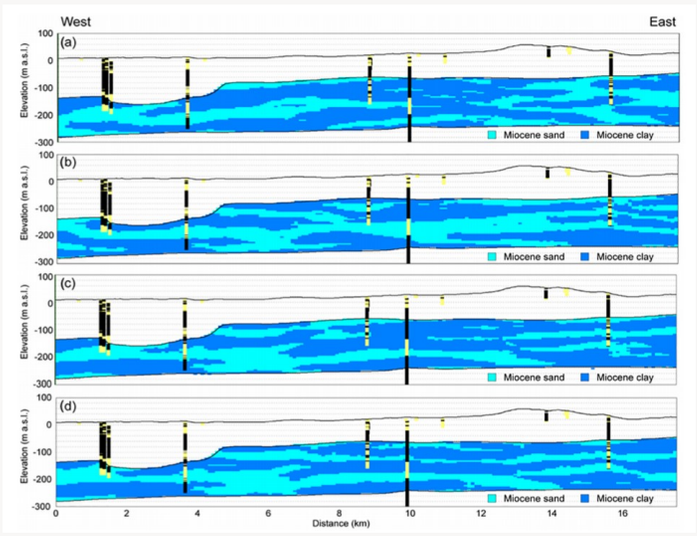




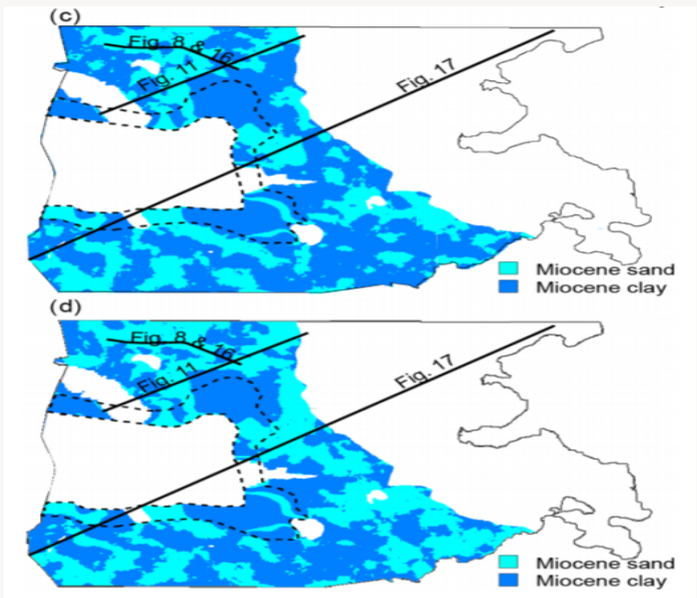
One seamless workflow

The Simulation Extension provides tools for transforming observed data, e.g., geophysical resistivity data or well data, into soft and hard data (which reflect variable data quality) and integrate these into the MPS algorithm.

GeoScene3D fully enables these voxel-based MPS results into the software's integrated environment, allowing visualization in interactive 3D, Cross Sections and GIS Map Views, and provides additional analytical tools that can be applied to the simulation results (e.g., E-Type Maps).



Høyer, A. S., Vignoli, G., Hansen, T. M., Keefer, D. A. and Jørgensen, F.: Multiple-point statistical simulation for hydrogeological models: 3D training image development and conditioning strategies, Hydrology and Earth System Sciences Discussions, 2016.



A wizard based workflow

As part of the seamless integration of the MPS tools into GeoScene3D Software, a set of easy-to-use wizards are available to guide the user through the MPS workflow.

Wizards support the user within the MPS modeling workflow, ensuring faster and more reliable results.

YouTube

WANT TO KNOW MORE?

We are here to help you! Find our useful online tutorials and information about GeoScene3D on our homepage or on YouTube channel: www.youtube.com/user/GeoScene3D