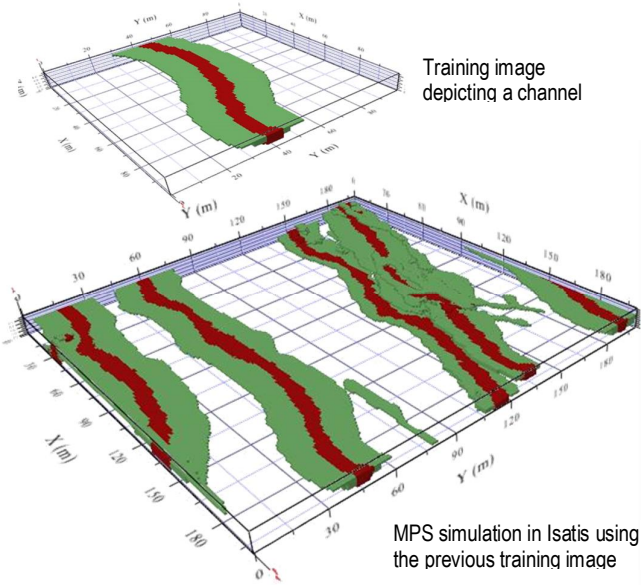
iSATiS MPS Impala

GET REALISTIC IMAGES OF THE INTERNAL STRUCTURE OF YOUR RESERVOIR WITH MULTIPLE-POINT STATISTICS

Isatis offers a powerful implementation of the Multiple-point Statistics (MPS) algorithm which integrates the optimized Impala[1] library by Ephesia Consult.

Multiple-point Statistics is a facies modeling technique based on multiple-point statistics instead of the conventional variogram-based techniques founded on bi-point statistics. It offers another way to model complex and heterogeneous geological environments through the use of a training image which describes the geometrical characteristics of the facies to model. The method allows capturing geological elements like channels, reefs, bars, dikes or differently oriented facies, while honouring data information.

Isatis, with Impala, powers MPS use and allows generating complex yet realistic geological patterns in an easy and efficient way.



Besides, Isatis provides functionalities to create 2D training images from imported images and considers object-based or plurigaussian non conditional simulations as potential 3D training images. Channelized system models derived from Flumy can also serve as a training image for MPS.

[1] Acronym for Improved Multiple-point Parallel Algorithm using a List Approach

This Impala-based MPS algorithm complements Isatis **Plurigaussian Simulations (PGS)** already used to model complex geology geometries. It enriches the exclusive range of facies modeling techniques Isatis already offers (including object based simulations like Boolean, Dead Leaves or Dilution techniques, variogram-based simulations like SIS, TGS, PGS or training image-based simulations like the Annealing Simulations).

ISATIS MPS KEY POINTS

High performances

- Parallel algorithm (CPU performances)
- Based on lists (RAM performances) and trees (speed performances)

Unique features

- Multi-grid approach for capturing efficiently large scale features
- Conditioning to hard data: seismic, well information, gradient (i.e. distance to the coast, distance to specific topographic object, etc.).
- Conditioning to facies proportions
- Non–stationarity handled with continuous auxiliary variables or local proportions
- Local anisotropy handled with the definition of local azimuth and local affinity

Advantages

- Intuitive use of training images (seismic, geological model, analogs, boolean simulations)
- Enhanced realistic aspect of models thanks to conditioned data
- Simulation of non-stationary deposit environment
- Full control of parameters
- Proper modeling of non-stationarity and local proportions
- More flexibility on search template size and number of facies
- Improved efficiency

Geovariances
Where no one has gone before
www.geovariances.com
✉ sales-oil@geovariances.com
✆ +33 1 6074 9090