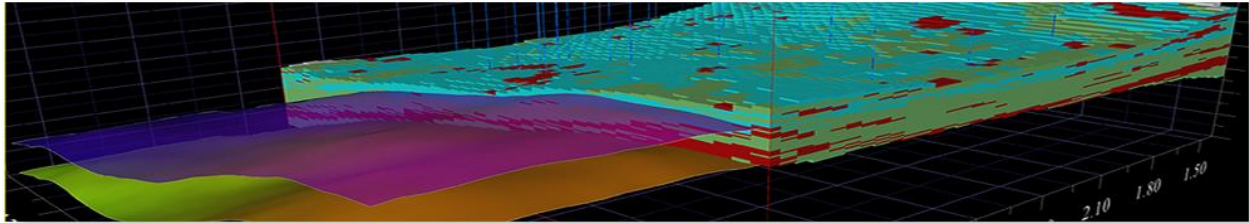




Plug Isatis Geostatistics Software in Your Reservoir Modeling Cycle



Data Reconciliation

Integration of 2D and 3D data sets (2D or 3D seismic data, well logs, faults, grid).

Data Quality Control

- **Investigate and clean your data** with Isatis unique Exploratory Data Analysis interactive module.
- Analyse **the relationships** between variables.
- Analyse **the spatial correlations** between variables.
- Characterize the **spatial behaviour** of your data (variography and modelling).

Time-to-Depth Conversion and Structural Modeling

- **Coherent 3D velocity cube** estimation from 2D or 3D seismic velocities.
- Handle **2D and 3D faults** from variography to kriging and simulations.
- Perform optimal 2D & 3D **time-to-depth conversion** by using multivariate kriging techniques controlled by seismic.
- Identify and process **misties** between well and seismic depths through multivariate kriging techniques.
- **Quantify the uncertainties on surfaces** using appropriate stochastic simulation algorithms.

Facies Modeling

- Put the model in the **original stratigraphic system** by flattening the 3D grid.

- Define the **bedding geometry**. Choose between parallel and proportional layering.
- Build the 3D model of **lateral and vertical facies distributions** over the field from the (local) Vertical Proportion Curves. Possibility to use a **2D facies proportions constraint** derived from seismic.
- **Distribute the facies** over the 3D grid using the stochastic simulations. The various available techniques allow adapting the facies modeling to the **amount of information** (spatial variability, 3D facies proportion) and **geology complexity** (objects, facies transition, ...).

Petrophysical Modeling

- Populate the grid with **petrophysical properties** (porosity, permeability, water saturation) from well logs using data integration techniques.
- Get **optimistic and pessimistic scenarios** with the appropriate stochastic simulation method.
- **Constrain** petrophysical modelling by facies modelling.

Reservoir Volumetrics

- Compute **accurate volumes** by zone, facies, stratigraphic units taking into account the uncertainties on surfaces, fluid contacts and/or petrophysical properties in an optimal way through the **Volumetrics** application.
- Get the **probability distribution of GRV, HCPV, STOIPP, GIIP**.
- Determine the **reservoir closure** and identify the **spill points** with Isatis specific module.

Isatis Overview

Data Integration

- Import and export interfaces with most Oil & Gas market formats (ASCII, Arcview Shapefile and grids, CMG, DXF-Autocad, Eclipse, Excel, Geoshare, LAS, ODBC, NetCDF, SEG-Y, VIP, Z-Map Plus) and professional packages (Irap Classic, Roxar RMS).
- Direct link from/to ISATIS database in SKUA-Gocad®, the RML®, Petrel® and DecisionSpace® Geosciences.

Data Management

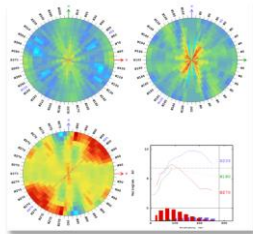
- Integrated database to save data and derived properties reusable later in the workflow.
- Parameter files and journaling file system for automatic procedures using batch.

Data Quality Control and Spatial Analysis

- Unique ability of interactive and dynamically linked basemaps, histograms, scatter diagrams, H-scatter plots, QQ-plots and PP-plots, variogram clouds, experimental variograms and related functions in any direction of space. Boxplots, swathplots. Experimental variograms on large grids.
- Unique ability of picking data in the linked graphic windows for identifying possible outliers or anomalous data.
- Unfolding/Folding.

Variography

- 2D/3D isotropic/directional variogram, identification of directions and scales of continuity through unique 3D interactive variogram map. Variogram modelling on large grids using FFT.
- Simple and cross-variogram automatic fitting. Exhaustive set of models with no limitation in the choice of nested variograms.



Full Range of Estimation Methods

- Ordinary/simple kriging/IRF-k. Punctual/block estimation. Drift estimation. Collocated co-kriging. Kriging with external drift. Kriging with Bayesian drift. Stationary/non stationary models.
- Univariate/multivariate kriging.
- Global Trend Modeling. Universal Kriging.
- Kriging with local parameters.
- Powerful search neighborhood control.
- Automatic factorial kriging (MAAFK) for extracting common/different components from two grid datasets.
- Possible use of 2D or 3D faults in estimation procedures.

Stochastic Simulations

- Conditional/non-conditional simulations.

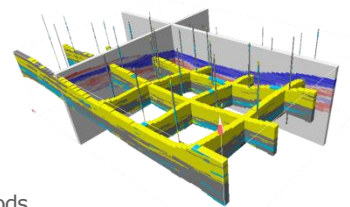
- Surface and properties modeling: turning bands, collocated co-simulations, simulations with external drift, Sequential Gaussian Simulations (SGS). Cloud Transform simulations.
- Facies modeling: Sequential Indicator Simulations (SIS), Truncated Gaussian Simulations (TGS), Plurigaussian Simulations (PGS), Boolean simulations, Multiple-point simulations, Flummy, reservoir model for meandering channelized systems.
- Possible use of 2D or 3D faults in estimation procedures.

Quantification of Uncertainties

- Probability maps, quantile maps, risk curves.
- Volumetrics. Spill Points calculation.

3D Viewer

- Representation of 3D punctual data, wells/boreholes data, 3D models, 2D surfaces, 2D/3D polygons, 2D/3D faults, 3D wireframes.
- Visualization of 3D neighbourhoods.
- Many features such as clipping, slicing, zooming, filtering, database inquiry.
- Easy export of any graphic page in standard image formats.



System Requirements

Operating systems

Available on PC Intel/AMD Windows 7 or 8, 32-bit or 64-bit (recommended) or Linux Red Hat Enterprise 5 (or 6) or equivalent (64-bit). Isatis on Windows OS requires the PC X server Exceed V14+.

Hardware

- Processor: Pentium ~1Ghz (Windows)
- Memory: 1 GB required
- Hard Drive: 200 MB of disk space

License

Reprise Manager licensing system (by Reprise Software) allowing flexible use on any system. Single-user or site license system. Dongle-based license. License borrowing enabling temporary check out of a license for working offline.

Consulting Training

Our highly experienced consultants provide a wide range of top quality services for beginners and specialists in Geostatistics: one-to-one technical support, mentoring, training workshops, consulting.