isatis.neo

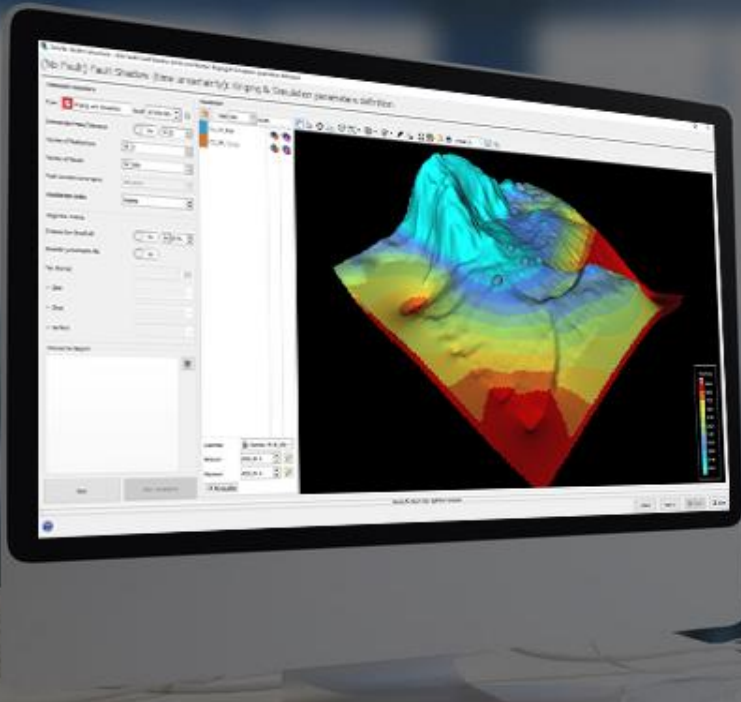**GEOSTATISTICS MADE ACCESSIBLE** | Petroleum edition

CONVERSIONS & UNCERTAINTIES

Quickly convert time into depth, fully explore recoverable volume scenarios and make risk-informed decision.

Conversions & Uncertainties Workflow brings an innovation leap in time-to-depth conversion allowing the most thorough analysis of reservoir volumes and for a better assessment of the economic viability of your project.

Developed in partnership with industrial sponsors, this is the **most modern and comprehensive conversion tool** on the market, with **sophisticated new methodologies** to deal with uncertainty propagation and a streamlined and intuitive workflow that **saves users a considerable amount of time in their projects**.

KEY FEATURES

– **Layer-cake approach**
– **Sequential**, **joint** or hybrid depth conversion
– **Depth** or **velocity** modeling
– **Depth calibration**
– Integration of **several sources of uncertainty**: time uncertainty map, velocity uncertainty map, fault positions
– Estimation methods: **Kriging** with or without **External Drift** and Factorial Kriging, in a standard or **Bayesian** framework
– Simulations and post-processing for **quantitative depth and volume uncertainty analysis**
– Data pre-processing: **fault modeling** from fault sticks in time or depth, **mis-ties interpretation**, **creation of synthetic markers**

Why Conversions & Uncertainties?

– It is designed for the **highest performance** and ease of use.
– It is built around **scenarios** that form the back bone of the application and facilitate **model comparison**.
– The new joint conversion methodology **minimizes error propagation**.
– The **delivered depth horizons honors well markers** and discontinuities related to faults and are consistent with seismic time or velocities.
– A post-processing prevents surface overlap and ensures **geology-compliant surfaces**.
– It is the only tool in the market that **considers possible lateral deviations of fault locations** in the conversion process.
– Potential **reservoir traps and related spill-points are automatically identified**.

ENJOY THE EXPERIENCE OF AN INTUITIVE SOFTWARE SOLUTION FOUNDED ON SOLID SCIENCE

QUICKLY GET TO GRIPS WITH SOFTWARE'S USE
Enjoy a **smart and streamlined workflow** designed for an **optimized way to reservoir volumetrics**. The workflow's innovative user interface is particularly intuitive. This makes data definition fast and simple.

ENJOY AN EXTREMELY FLEXIBLE TOOLKIT
Define well markers and seismic time horizons or velocity maps and run conversion using **depth modeling** (direct conversion) **or velocity modeling** (defining the velocity formula of your choice). Select the approach: **joint** (a set of conformable surfaces are converted simultaneously), **sequential** (one surface only is converted at a time), **or hybrid approach**. The base algorithm involves Kriging with External Drift and Factorial Kriging within their **classical or Bayesian framework** (which enables fine trend control and benefits from prior knowledge of the trend when well data is sparse).

EXPLORE MANY POSSIBLE CONVERSION SCENARIOS
Define several scenarios, run them all at once, and compare them for the **most efficient sensitivity analysis of the resulting morphology** to input data, computation methodology, and parameters. Create specific scenarios for **calibrating seismic depths to well depths**.

BE SURE OF THE ESTIMATED DEPTH QUALITY
Quickly check the quality of the estimates through various cross-plots and statistics. Cross-validation lets you compare the real marker values with their estimated analogous to test which parameters might prove better for your case-study. No need to wait for time-consuming depth conversions to be aware of the expected quality of your model.

CONSIDER MULTIPLE SOURCES OF UNCERTAINTY
Define time uncertainty (possibly reflecting picking uncertainty or seismic noise) and velocity uncertainty maps. **Define pessimistic, mode and optimistic scenarios of fault locations and standard reservoir parameters** (Gas Oil Contact, Oil Water Contact, Hydrocarbon Saturation, Porosity, Net to Gross Ratio, Recovery Factor). Run conditional simulations and get a full range of plausible depth realizations.

PERFORM THE MOST COMPREHENSIVE RISK ANALYSIS ON VOLUMES
From all depth realizations, the workflow **automatically identifies spill point locations, delineates potential reservoir traps** and calculates the probability maps to be inside or outside each trap. Then, considering the reservoir parameters, **the software delivers the pessimistic, mode and optimistic scenarios of the potential recoverable resource and the Gross Rock Volumes of Oil Zone, Gas Zone and Above Spill Point Zone**.

Fault uncertainty

Time horizon uncertainty

Geological post-processing
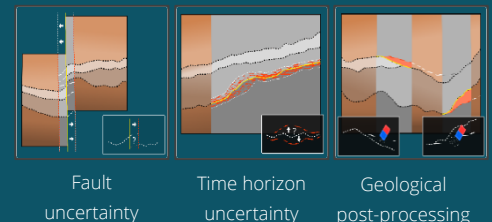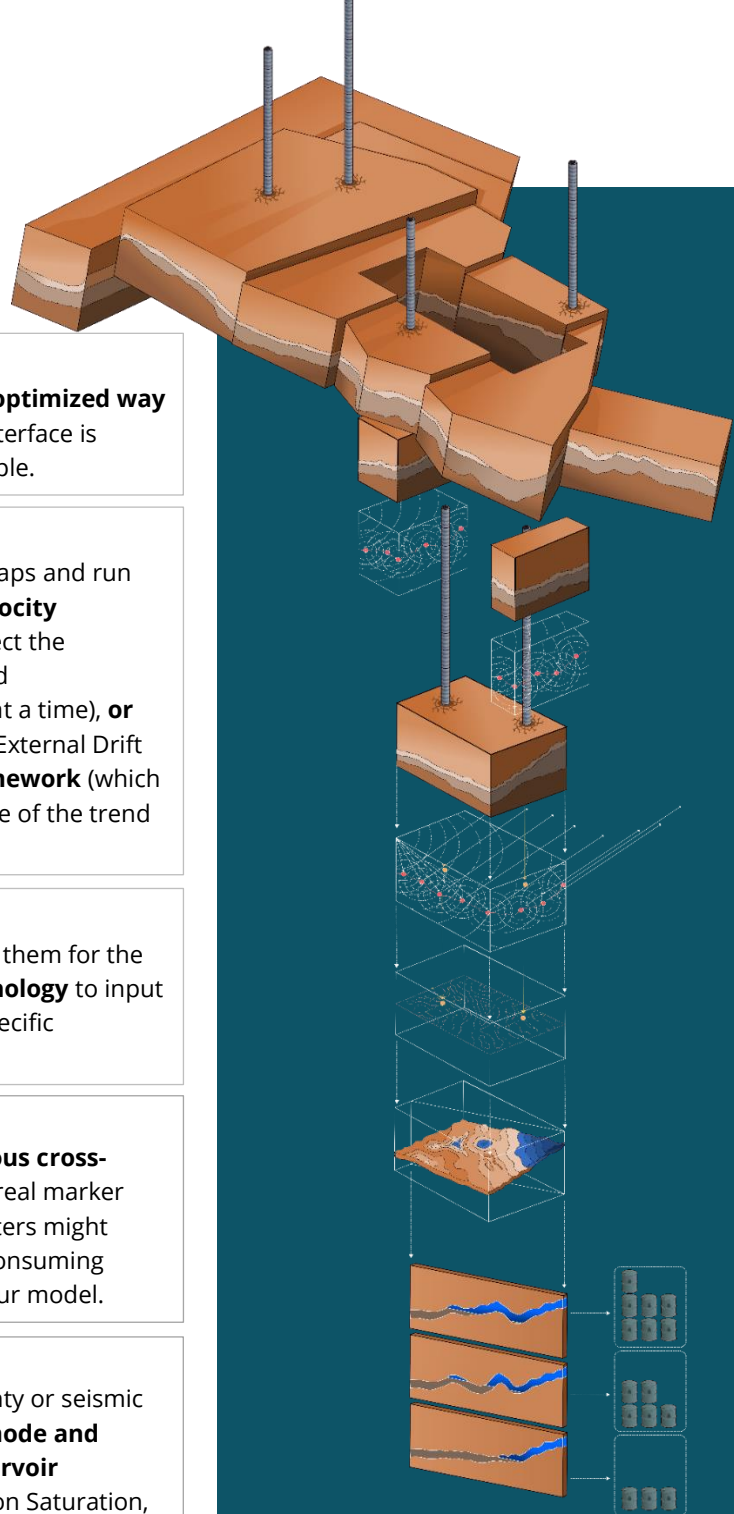
Conversions & Uncertainties Workflow is available into the Petroleum Edition of Isatis.neo, Geovariances software solution in geostatistics tailored for the upstream Oil & Gas industry.