



Geovariances  
Where no one has gone before

# UNCERTZ

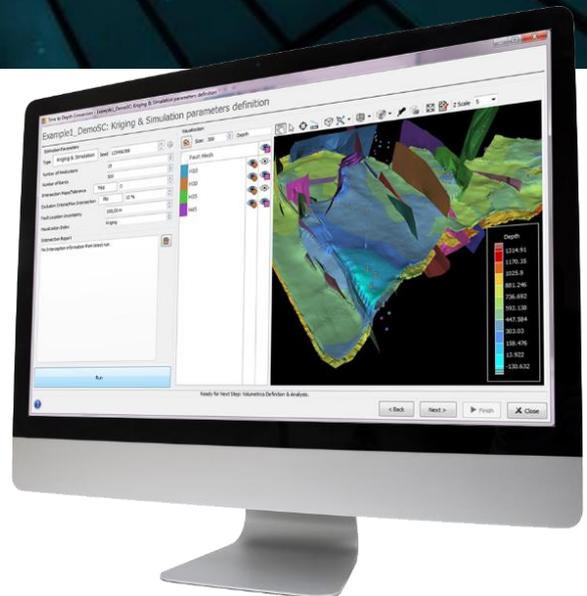
TIME-TO-DEPTH CONVERSION EVOLVED

UNCERTZ offers an innovative geostatistics workflow which transforms the complexity of time-to-depth conversion into an innovative, easy and intuitive experience founded on a solid science.

**UNCERTZ is a comprehensive software solution for geostatistical time-to-depth conversion, reservoir volume estimation, spill-point distribution analysis and uncertainty analysis.** It provides sophisticated new methodologies and integrates different sources of uncertainty for relevant risk analysis.

**UNCERTZ smart user interface makes it particularly easy to learn and use** while its powerful algorithms allow for quick delivery of final depth maps that honor well data.

UNCERTZ is provided as a plugin to Isatis.neo (Isatis new generation software) to be released early 2019.



## KEY POINTS

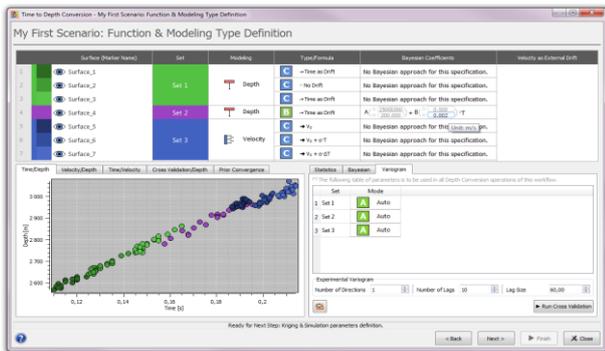
- **Layer-cake** approach
- **Sequential or simultaneous conversion** of multiple layers
- **Modeling control** with depth or velocity information
- **Bayesian framework** for fine trend tuning
- **Fault modeling** with uncertainty analysis on locations
- **Integration of several sources of uncertainty**
- **Depth uncertainty quantification and analysis**
- **Easy construction of various depth volume scenarios** that let you test several hypotheses in one single run
- **Fully automatic and data-driven parameter setting**
- **State-of-the art and intuitive graphic user interface**

## BENEFITS

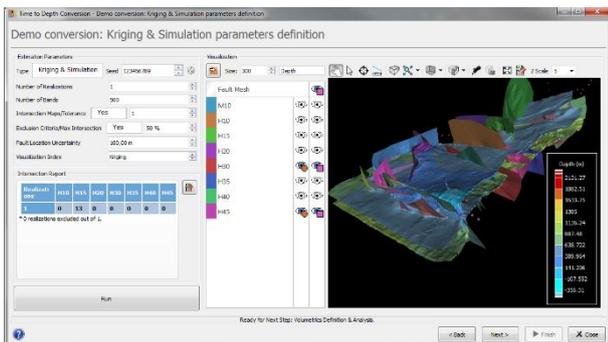
- **4-in-1 integrated software solution** for **depth conversion, spill points distribution analysis, volumetric analysis** (GRV/STOOIP calculation) and **uncertainty analysis**
- **Fast delivery of depth maps** that match well depth and are consistent with seismic time and velocities
- **Depth consistency between layers**
- **Minimization of error propagation**
- **Geologically valid output surfaces**
- **Better informed decisions** through structural and accurate volumetric sensitivity studies
- **Time saving** thanks to the workflow and powerful algorithms
- **Easy to learn and use**

## Depth modeling

UNCERTZ uses well markers and seismic time horizons or velocity maps to generate **thorough depth maps with uncertainty quantification**. This is achieved through a multivariate Kriging with External Drift (KED) approach. Also available, the **Bayesian framework** which enables fine trend control and benefits from prior knowledge of the trend when well data is sparse.



**Conversion is made layer by layer** (sequential approach), or **simultaneously on a set of conformable horizons** (joint approach), minimizing error propagation.



The geostatistical approach ensures that the mapped **depths match the well depth marker values**. Discontinuities related to faults are also honored through Kriging with External Drift.

## Uncertainty modeling

UNCERTZ allows for **accurate uncertainty quantification** through geostatistical simulations. A family of images that represents a range of plausible depth values is produced, from which different key scenarios (P10, P50, P90) may be derived.

**Several sources of time uncertainty** (including picking uncertainty) may be taken into account in the modeling process. UNCERTZ also considers **fault location uncertainty** for a more accurate exploration of the uncertainty space.

## Geology compliant surfaces

UNCERTZ depth conversion has a **post-processing phase** that prevents surface overlap in the output. The software produces intersection maps per realization and probability maps.

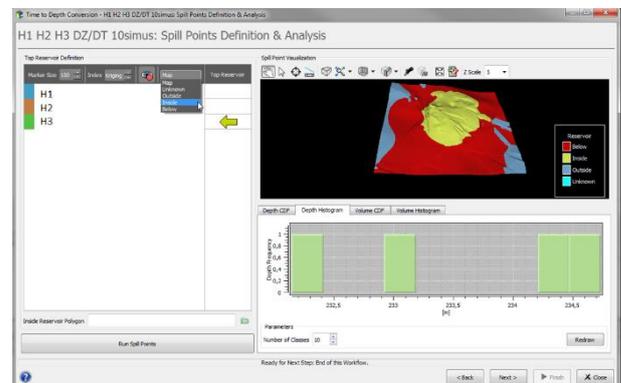
## Model validation

**Estimated depth quality control is achieved through cross-plots and several powerful statistics**. Cross validation lets you compare the real marker values with their estimated analogous to quickly 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.

## Spill point and volumetric analyses

UNCERTZ is prepared to **quickly perform Spill Point Analysis** on a target selection for all realizations.

Different outcomes are possible, including probability map to be inside or below the reservoir, distribution curve and histogram of spill point depth or volume.



**Various scenarios (low, mid, high case) can be built for volumetric sensitivity studies** by integrating fluid contacts and static and dynamic information (porosity, formation volume, recovery factor, Net to Gross ratio).. The following quantities are computed: gross volumes of oil/gas/above spill point zones, distribution curve and histogram of recoverable reservoir volume.

## Scenario building

With UNCERTZ, **you may define several scenarios and run them all in a single click**. This lets you quickly perform depth and volume sensitivity analysis to input data, computation methodology and/or parameters.

