PRODUCT SHEET

DionisosFlow®
Stratigraphic Modeling

DionisosFlow® aims at de-risking exploration and improving reservoir models by predicting stratigraphy and facies architecture at both basin and reservoir scales. Simulating geological processes through geological times, DionisosFlow® reconstructs depositional systems from the simplest to the most complex while honoring sequence stratigraphic frameworks based on core, well logs and seismic data.

Predicting stratigraphy at regional and local scales for reducing exploration and production risk

DionisosFlow® is a unique industrial package for generating 4D forward stratigraphic models in under-explored and complex areas while assessing the interaction between accommodation space, sediment supply and transport through a combined simulation of sedimentary processes (continental to marine siliciclastics, carbonates, and organic matter). Providing a physically sound geo-history model, DionisosFlow® helps in delimiting:

- geometry, facies, and connectivity of reservoirs bodies;
- extension and thicknesses of seals;
- distribution and nature of source rocks;
- paleo-geometries of sedimentary basins;
- groundwater properties and early diagenesis potential.

DionisosFlow® has been validated successfully through numerous case studies including amongst others, the Middle-East Cretaceous carbonate platform, Gulf of Mexico salt-driven tectonics province, Niger delta turbiditic system and the intra-cratonic depression in North Africa.

DionisosFlow® has also been applied favorably for delineating subtle stratigraphic traps in mature basins.

Modeling sedimentary processes

Accounting for subsidence rate, eustasy and sediment supply, DionisosFlow® simulates sediment erosion, transport and deposition as well as local carbonate and organic matter production. Carbonate production is modeled using bathymetry, wave/drift energies and ecological controlling factors.

Sediment transport is controlled by combining river discharge, wave impact, and slope parameters as well as flooding and slope instability for catastrophic sedimentary processes.

Input data consists in interpreted depth maps, subsidence maps, sea level variation data and salt deformation, if applicable.

Calibration is made against seismic and well log data (NTG, Vshale, Gamma Ray, Resistivity, biostratigraphy, ...).

Key benefits

- **Applicable in clastic, carbonate and mixed environments, from continental to deep water**
- **For hydrocarbon E&P, CO2 storage and geothermal**
- **Tailored for stratigraphers and sedimentologists**
- **Seamless link with TemisFlow® for basin modeling**
- **Slick & user-friendly**
- **Uncertainty and risk analysis with CougarFlow®**
- **Assisted calibration with CougarFlow®**
- **Compatible with third-party applications (such as Petrel, DSG, MPath, and more)**
- **Innovation through active research & development**
- **Parallel computing for leveraging multi-core and cluster hardware**
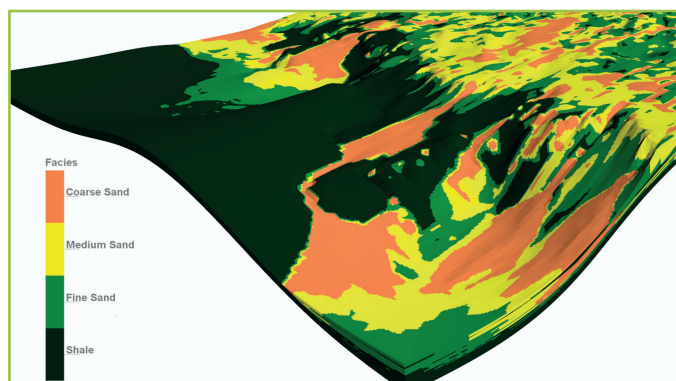
High resolution basin floor fans and turbiditic channels (cell size: 100m).
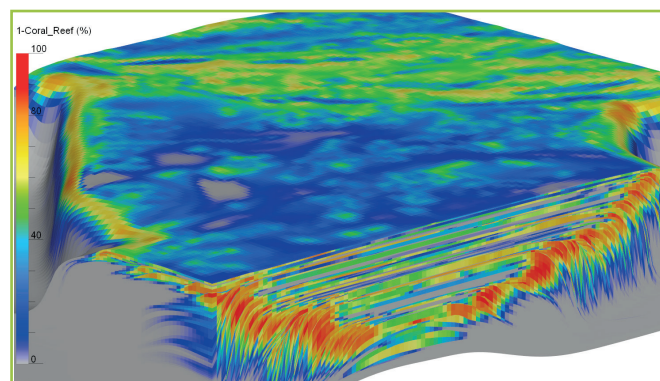
Modelled coral reef proportion showing barrier and patched reef architecture (cell size: 200m)

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