

MultiLayer Building 3D geological models

> Overview

MultiLayer is an extension for GDM 2020 to quickly build 3D geological models in the case of sedimentary (or tabular) layers, allowing major productivity gains.

MultiLayer easily exploits geological data that are connected/stored in a GDM project and manages the workflow of geological modeling for you .

Once the geological pile to be modeled has been defined, a set of analysis and cross-checking tools allows you to verify, correct and interpret your data.

A wizard then guides you in building the geological model. All the construction parameters can be saved and re-used.

The model can be easily displayed thanks to the automatic generation of maps, cross sections and 3D visualization. It can also be exported to standard formats. Predictive drill holes and volumes can also be derived from the model.

> Fields of application

- Mineral resources exploration and mining,
- Underground water management,
- Tunnel, dam, underground storage design, geotechnics,
- Urban development planning,
- Soil pollution assessment,
- Geothermal energy.

> Product range / Price

- Prerequisite: have a GDM licence at your disposal
- Windows application :
Single or network licence
Academic licence
Decreasing rates

Please contact us for further information

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> Contact

Infrastructures and Numerical Services Division

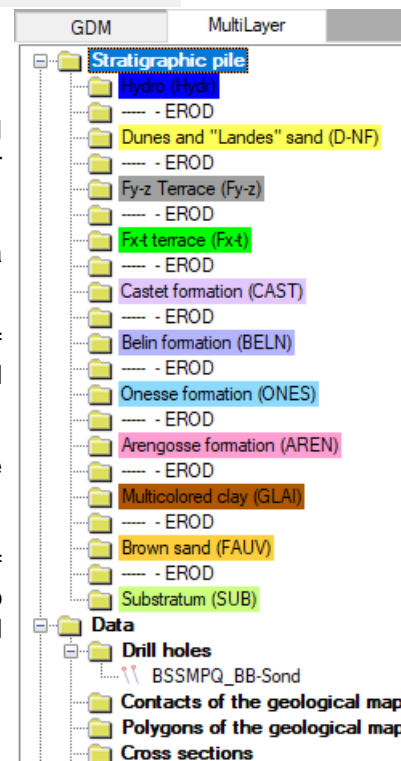
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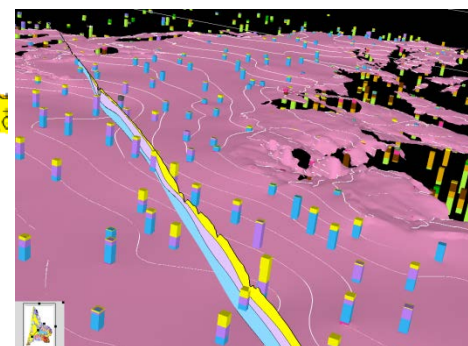
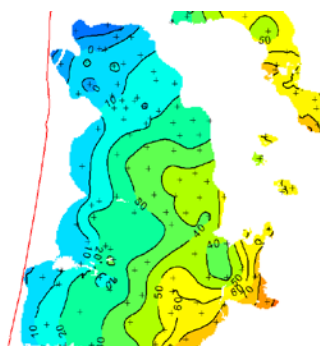
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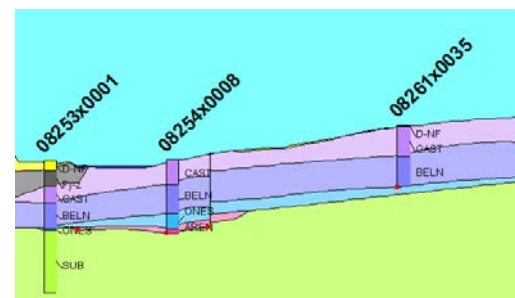
Web: <http://gdms.brgm.fr>



MultiLayer tree showing the litho-stratigraphic pile



Aquitanian basin. Isohyps map and 3D view of a surface from the model



Cross section in a 3D model



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MultiLayer (extension for GDM)

Technical features

DATA MANAGEMENT

General features

- MultiLayer can use any type of data that can be accessed from GDM : direct connection to Access 2007, Oracle, SQLServer, MySQL, PostgreSQL, MySQL, Excel 2007, CSV (read only).
- MultiLayer also reads GDM files.
- Further to current GDM import/export functions, MultiLayer includes efficient exports of geological models towards standard ascii formats (ESRI Ascii raster format, CSV or text files), with a choice of decimal places

GEOLOGICAL DATA TAKEN INTO ACCOUNT

Various types of data can be taken into account in building geological models:

- Vertical Drill holes (directly) or deviated drill holes,
- Interpreted cross sections (geological or geophysical),
- Vectorised geological map,
- Points giving the elevation of the top or base of formations,
- Points giving the formation thickness (from outcrops),
- Digital elevation model,
- Maximum extent area of a geological formation,
- Faults.

MODELLING PROCESS & OPTIONS

- Defining the geological pile to be modeled and its history (deposit/erosion),
- Selecting a modeling choice: tops or base, or thickness (or both)
- Possibility to impose a previously computed geological surface,
- Fault network: can be different depending on geological formations,
- Polygon boundary to limit the model area,
- Each geological formation maximum extent can be defined by a polygon,
- Interpolation method (kriging or « conventional »),
- Support for digitizing constraint points to improve the model,
- Tool to find model inconsistency,
- Parameters of calculation saved and re-usable,
- Options to boost calculation ("multigrids")

GRAPHICS

Generation of automatic and customizable graphics:

- Location maps
- Isopach maps
- Isohyps maps
- Cross sections
- 3D views

All graphics can be saved and re-used in GDM.

Graphics are automatically updated when model is updated.

Graphics use the formation colors defined for the geological pile.

CONSISTENCY TESTS

Various tools to check the input data consistency :

- Drill holes versus DEM
- Drill holes vs Geological map or vs Maximum extent of geological formation
- Consistency of nearby data
- Search for duplicates
- Comparison of data with an existing model
- Statistical and geostatistical analysis: histogram, variogram, cross validation
- Control of inequality constraints when building the geological model. Wizard to allow automatic detection and correction of non honoured inequality constraints

These tools produce graphics and reports that can be easily used/imported in GDM, Excel, ...

EXPLOITATION OF THE MODEL

- Automated export of the model to standard formats (ESRI Ascii Raster grid format, CSV, Text) with choice of the number of decimal places
- Volume calculation
- Predictive drill hole calculation



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- For Windows 10, in single-user or network version
- Project structure interface with pop-up menus and toolbars
- Windows MDI (Multiple Document Interface)
- 32/64 bits .Net technology

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