

Press kit

Minestis 2015 – May 5th, 2015

Worldwide leader in Geostatistics, Geovariances enables its clients involved with mapping, resource estimation or risk analysis to benefit from almost 30 years' experience in marketing geostatistics software solutions and expertise to the Mining, Oil & Gas and Environmental industries.

Press Contact:

Elodie Galloyer

E-marketing, PR and communication officer

+33.1.83886048

galloyer@geovariances.com



Geovariances
Where no one has gone before

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Elodie Galloyer e-marketing, PR and communication officer
+33.1.83886048 - galloyer@geovariances.com

Avon, May 5th 2015 – Geovariances announces the launch of Minestis, its brand new software solution dedicated to mineral resource estimation.

Minestis offers a **fast and easy-to-use workflow for domain estimation and mineral resource modeling** through a simplified and secure geostatistics-based approach.

“When designing Minestis, our main objectives were: firstly, to offer our customers **a new generation mining-focused software solution that non-experts in geostatistics can learn and implement easily**; secondly, that this new software **ensures the quality and the performances** of the geostatistics our leading software Isatis is renowned and referenced for”, Geovariances Software Development Manager François Geffroy says. “As a result, Minestis simplifies resource estimation and quickly delivers reliable estimates”.

Minestis provides **a workflow which takes the user through every step of its resource modeling project**. The software starts with **the loading of already built grade shells** or geological surfaces and verifies that **geological domains are coherent** with each other. It goes on with a **geostatistics-based estimation process** which gives users access to the only parameters they need to control through a **smart user interface**. It quickly ends up with the production of the **recoverable resource figures** required for subsequent resource classification.

Minestis implements **powerful parallelized geostatistical algorithms**: kriging, conditional simulations, uniform conditioning and localized uniform conditioning. Additional tools such as automatic variogram fitting or kriging neighborhood analysis, combined with a modern interface, **facilitate software use and parameter setting**. Early users also reported that Minestis is fast and visual.

“The strength of Minestis is that it **manages the estimation of geological domains and block models in a coherent way**, thus **ensuring the quality of resulting estimates**”, Geovariances Chief Technology Officer (CTO) Nicolas Jeannée indicates. “Another strength is that Minestis also makes the recommended advanced resource evaluation techniques like **conditional simulations** or **uniform conditioning easy to implement by non-experts in geostatistics**. This means users hold all the assets to get the resource figures expected by their company.”

And for advanced optional functionalities, Minestis can be advantageously complemented by Isatis through a dedicated link.

Only for the companies which have sponsored the related research program, Minestis enables **innovative implicit domain modeling** directly from borehole data. It also enables **uncertainty assessment on the domain envelopes**, which is unique among mining packages. Domain modeling will be publicly released in 2016.

www.geovariances.com

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C. Where to find Minestis?

Geovariances is to present Minestis at:

- ❖ **CIM 2015 – Montreal, Canada** – May 10-13, 2015
- ❖ **International Uranium Conference – Adelaide, Australia** - June 9-10, 2015
- ❖ **Africa Australia Technical Mining Conference – Adelaide, Australia** - June 11-12, 2015
- ❖ **Geomin 2015 – Antofagasta, Chile** – July 8-10, 2015
- ❖ **Iron Ore 2015 – Perth, Australia** – July 13-15, 2015
- ❖ **The Danie Krige Geostatistical Conference 2015 – Johannesburg, South Africa** - August 19-20, 2015

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D. Minestis technical features

- **Minestis takes you through every step of your mineral resource modeling project, from data loading and domain definition to variography and resource evaluation**
 - **All-in-one workflow** for mineral resource estimation.
 - Access limited to the **only parameters you need to control**, which ensures model coherence.
- **Minestis handles simple and complex geological domain geometries**
 - **Easy load** of ready built grade shells or geological surfaces.
 - **Domain modeling*** from borehole data. External constraints can be set to refine the different domain envelopes (contact points between domains, points inside/outside domain, surfaces, gradients).
 - **Consistency** between geological domains verified.
 - **Uncertainty assessment*** on the domain envelopes.
- **Minestis estimates and reports your resources in an efficient way**
 - **Complete data analysis process** with statistics production (histograms, swath-plots, cross-plots), drillhole length regularization, data declustering (statistics help define the best declustering window size), structural analysis on raw and Gaussian transformed grades.
 - **Facilitated variogram modeling** thanks to automatic variogram fitting. Support correction and Information Effect are taken into account.
 - **Block estimation** through ordinary kriging with moving neighborhood.
Kriging Neighborhood Analysis helps derive relevant neighborhood parameters.
 - **Recoverable resource estimation at global and local scales** from Uniform Conditioning (UC), Localized Uniform Conditioning (LUC) and Turning Bands conditional simulations.
Panel and SMU size definition, block kriging, UC/LUC and simulations are run in one hit for each domain.
 - **Report of tonnage, metal, grade and/or benefit figures** for each defined cutoff and for either panel or SMU support, by domain or over the whole study area.
- **Minestis puts the orebody in its wider environment**
 - **Integrated Geographical Information System (GIS) components** to collect, display and precisely locate any information about the orebody surroundings: digital elevation model, photogrammetric image, geology, etc.
 - **3D viewer** for powerful data exploration, analysis and understanding.

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E. Geovariances key points

World leader in Geostatistics

- **French independent software vendor specialized in geostatistics**
 - Founded in 1986 by three engineers from the Geosciences Research Department/Geostatistics Group at Mines ParisTech.
 - Developer and exclusive distributor of two software packages:
 - ISATIS, the industry benchmark software for Geostatistics for more than 20 years,
 - MINESTIS, the Route to Resource Estimates,
 - KARTOTRAK, integrated software solution for contaminated site characterization.
 - Training provider in geostatistics.
 - Consulting service provider related to mineral resource estimation, oil reservoir modeling, contamination mapping and characterization, etc.
- **Real know-how and professional expertise in geostatistics**
 - Almost 30 years of experience in applying geostatistics to address mine exploration, oil/gas exploration or environmental issues (i.e. contaminated site characterization).
 - Versatile team of highly qualified geologists, mining engineers and geostatisticians with worldwide experience.
 - Regular contributions to international industry, academic conferences and professional journals.
- **Committed to fully support the industry's needs by constantly improving its software products and technology:**
 - Continuous investment in research and development through research consortia or partnerships with research leaders in their respective industries:
 - Mines ParisTech for the development of ISATIS,
 - CEA for the development of KARTOTRAK,
 - Ephesia Consult for the implementation of their Impala library (MPS) in ISATIS.
 - Responsible for the implementation of many significant technical advances over the past 30 years.
- **Location**
 - Headquarter based in Avon-Fontainebleau.
 - Local office in Perth (Australia).
 - Local representation in São Paulo (Brazil).
- **Key figures :**
 - Number of employees: **+45**
 - Turnover: **+5 M€**
 - **+500** company customers over the world
 - **+3000** software users worldwide

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F. Geovariances vision

❖ **To offer our customers leading-edge technologies in geostatistics**

Based on a research and partnership strategy

Geovariances invests in R&D via consortia and partnerships with renowned research centers in geostatistics and leading multinational companies to constantly provide even more innovative solutions closer to the needs of its customers.

❖ **To provide the most complete solution in geostatistics**

To answer any kind of expectation, from the beginner to the expert in geostatistics

With its highly qualified human resources in geostatistics, mathematics, geology and software development, Geovariances can offer the expertise industrials, consultancies or local authorities expect.

The service as a priority

Geovariances is well aware that adequate resource estimation or mapping is a strategic challenge for its customers. The company builds on its partners' and own expertise to answer its clients' challenges and provide solutions on which they can rely confidently. That is why Geovariances is committed to offer quality and accuracy to the users of its software packages.

Whether our software users encounter a technical problem or need to be guided in their use of our products, Geovariances' aim is that they avoid wasting time and gain productivity. **Geovariances Technical Support** is in direct contact with the users to quickly answer their questions and is committed to keeping in touch with them as much as they need. That is why **Geovariances Technical Support** is recognized and praised by all its beneficiaries.

❖ **To be the first geostatistics sponsor**

And develop new markets

Geostatistics is essential in a world where needs in raw material are constantly growing and natural resources are becoming scarcer, deeper and more complex to extract, and where environmental risk control has become compulsory. Advanced geostatistics allows better resource estimation, enhanced characterization of pollution, therefore leading to an improved risk assessment and a smarter cost control.

So that everyone can benefit from geostatistics added value, Geovariances offers a comprehensive training portfolio and helps everyone who needs to go further in their projects by offering specific mentoring services.

Geovariances' aim is to maintain its leadership status in geostatistics after nearly 30 years of worldwide experience.

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G. Priority targets and a few customer references

❖ **Priority targets**

Mining companies, consultancies, resource geologists and geostatisticians.

❖ **Some customer references**

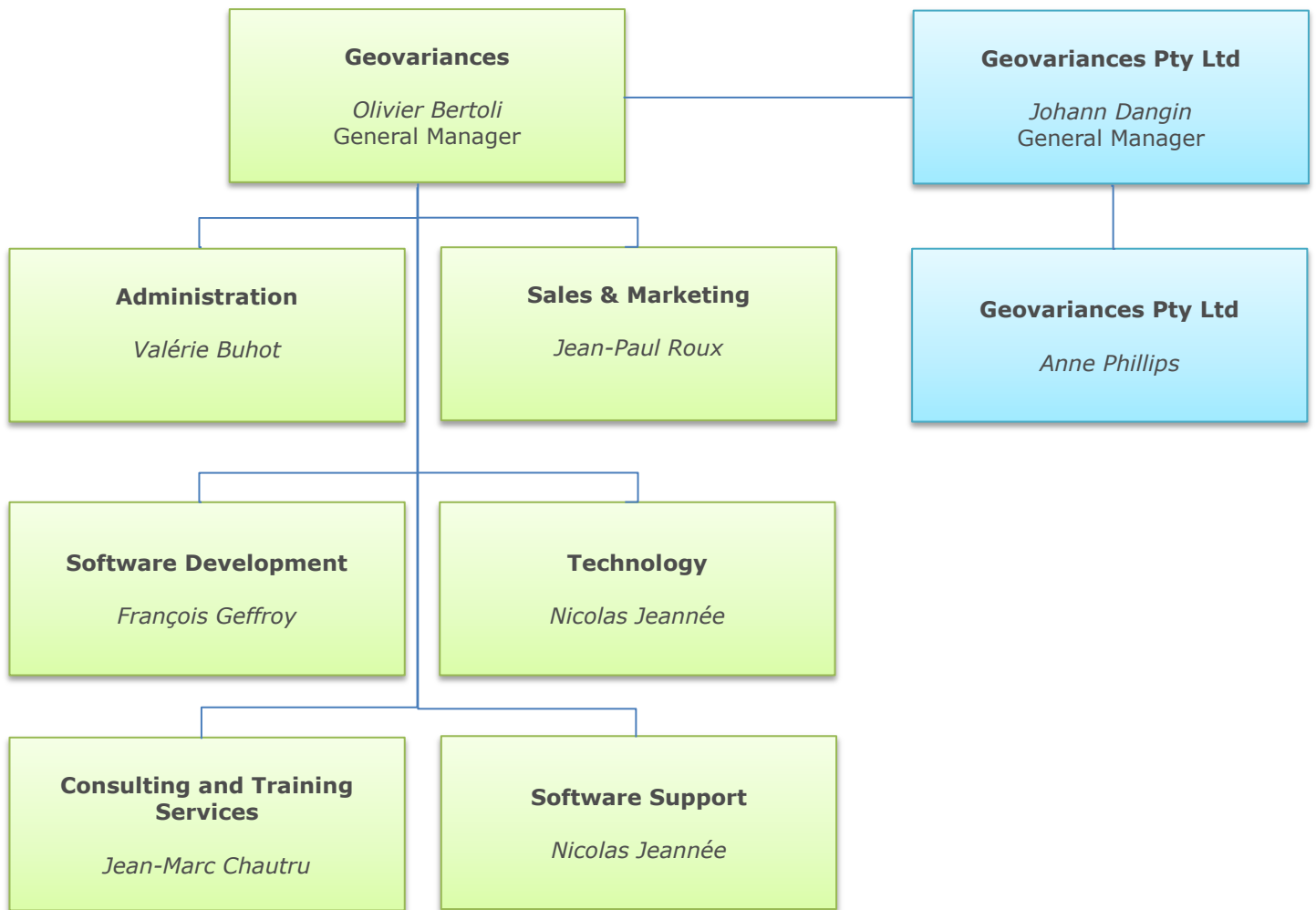
LEADING COMPANIES THAT ALREADY USE MINESTIS

- AngloGold
- Areva
- BHP Billiton
- Eramet
- Vale
- SLN

→ [Main Geovariances' clients in the Mining sector](#)

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H. Organization chart



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