

## **COMPARISON OF TECHNIQUES FOR THE 3D VOLUME MODELLING OF DEPOSITS WITH TABULAR GEOMETRY**

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### **ABSTRACT**

The 3D volume modelling of vein-type, stratiform, stratabound and other ore deposits with tabular geometry is a critical step in the evaluation of their ore resources. The resulting models are used as mineralization domain boundaries and have a direct impact on the tonnage of estimated resources. Traditionally, this task is performed using deterministic wireframing techniques based in a particular interpretation of the geometry of the deposits. During the last years, new deterministic and stochastic methodologies have appeared as an alternative to the time consuming traditional techniques. These new approaches are not only able to produce realistic 3D models using a fraction of time and resources, but some of them are also able to assess the uncertainty related to the deposit tonnage. Newly developed deterministic techniques include Support Vector Machines and the increasingly popular fast geological modelling based on Radial Basis Functions. Alternatively, stochastic techniques have been proposed under a geostatistical framework. These include Locally Stationary Sequential Indicator Simulation and Distance Functions. These four techniques are presented in this paper and compared with the help of a geologically realistic example. Their comparative advantages and disadvantages are discussed and suggestions for their application in relation to the objectives pursued are given.