

## SUCCESS STORY



### VARIABLE GRID METHOD

## NETL LICENSES GEOVISUALIZATION TECHNOLOGY FOR IMPROVED SPATIAL DATA ANALYSIS AND RISK ASSESSMENT

The U.S. Department of Energy's National Energy Technology Laboratory (NETL) has granted a Texas-based startup, VariGrid Explorations, LLC, an exclusive license for a geovisualization software system to aid in the analysis and interpretation of spatial data trends.

The use of spatial data to develop maps and represent spatial relationships has historically been used to great effect in the scientific community. During the past decade, the use of spatial data in natural and engineered systems has increased dramatically. However, accurate communication of spatial data has remained challenging because it is typically difficult to represent the uncertainty associated with a given spatial dataset. As a result, data presented to users often contains little identification of its inherent uncertainty. Uncertainty manifests itself in many ways, including variable data and sources, errors related to accuracy and precision, human error, and equipment error. Since key decisions are often made based on the results of collected data, stakeholders require data that conveys both accuracy and uncertainty.

The NETL-developed Variable Grid Method (VGM) is a novel approach to data visualization that employs geographic information system capabilities to simultaneously quantify and visualize spatial data trends and underlying data uncertainty. The method provides a user-friendly, flexible, and reliable tool to effectively communicate spatial data, as well as the data's inherent uncertainties, in a single, unified product. VGM can be incorporated into existing software packages or used as a post-processing workflow. The intuitive setup of the VGM helps communicate the relationship between uncertainty and spatial data to effectively guide research, support advanced computation analyses, and inform management and policy decisions. The method, which is applicable to a wide range of end users, can reduce risks, improve decision-making, and reduce costs.

VariGrid Explorations intends to deploy the software system into targeted markets, in particular geophysical applications. According to VariGrid's Chief Technology Officer, Mr. Paul Wanjau, "Application of this technology to oil and gas reservoir analysis will allow petrophysicists and reservoir engineers to provide more realistic presentations of

computed reservoir properties, and ultimately, oil in place. Currently, decisions are often made based on computed outputs alone without taking uncertainty into account. Further, this methodology has application in medical and several other markets where spatial data is used to make critical decisions.”

VariGrid’s business approach will initially focus on offering the software as a standalone, subscription-based product. The team will be working in parallel on software updates, as well as other products and services to complement the existing technology platform.



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