

VIRTALIS

MAKE VIRTUAL A REALITY



British
Geological Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

STEP INTO
ANOTHER WORLD
WITH GEOVISIONARY

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GEOVISIONARY BRINGS A DIFFERENT PERSPECTIVE

COMBINING a powerful data engine with a virtual geological toolkit enables geoscientists in many and varied industries to visualise, analyse and share large geoscientific datasets seamlessly in an immersive 3D, real-time environment.

Virtualis' approach to GeoVisionary is different from any other company involved in GIS mapping. Our starting point was that we wanted to be able to view all of the data all of the time and we wanted to view it in 3D at the highest level of detail.



GeoVisionary visually integrates terabytes of elevation and photography data covering a huge geographical area in real-time. It allows geospatial data, such as geological models, environmental, flooding, chemical, political, military and other GIS data to be visualised simultaneously along with CAD models of actual or proposed buildings and infrastructure, giving a complete 3D picture. GeoVisionary has been designed in such an open way that other software packages, such as ESRI ArcGIS, link into it easily.

GeoVisionary is limited only by the resolution of the data loaded into it. This means you can use 100% of your rich

data sets all the time. There is never any need for simplification. GeoVisionary is highly scalable and is able to provide "fly-through" viewing of regional, national and continental-scale data sets in real-time at full speed.

GeoVisionary has created a culture change in the way geoscientists visualise and interpret data and communicate their results by creating an intuitive virtual environment for them to operate in.

"GeoVisionary is a huge leap in geosciences visualisation technology. Never before have geoscientists had such advanced visualisation at their fingertips. The full richness of our geoscience data can be visualised in seconds. What began as a simple field reconnaissance project for geologists has numerous uses for a diverse range of organisations".

Bruce Napier, Leader of BGS' Virtual Field Reconnaissance project.



KEY BENEFITS:

- **Clearer communication of results and powerful promotional tool**
- **Prepare and evaluate before you begin fieldwork**
- **Enhance teamworking and increase efficiency in field operations**
- **Debrief and conclude on return**
- **Diverse datasets in a single environment**
- **Infinitely scalable, no restrictions**
- **Continuously stream geometry and photography in real time**
- **"Fly" anywhere in seconds**
- **Highlighting relationships improves understanding and reduces risk**
- **Improved profitability**

VISUALISE, ANALYSE, INTERPRET

GeoVisionary's novel multi-resolution data formats give the ability to visualise as you fly, continuously streaming both geometry and photography to imperceptibly update the world around you. GeoVisionary takes advantage of the latest vertex and pixel shaders and uses the most advanced NVIDIA graphics cards.

"The ability to mark contacts, structures and other geological features while fully immersed in a 3D environment is probably as close to real field mapping on Mars as is possible at the moment".

Dr. Peter Grindrod, a planetary geologist and Aurora Research Fellow at UCL.

"Virtalis' GeoVisionary software, coupled with the company's systems expertise, presents an excellent opportunity to expand Coffey's ability to provide high quality spatial data management solutions in 2D, 3D and 4D visualisations. Spatial data management is an important tool in providing planning, design, training and maintenance solutions to the mining industry, as well as in many other sectors".

Craig McCloskey, Coffey general manager of operations in South America.



CASE STUDY – VALE, BRAZIL

Vale is a global company headquartered in Brazil and operating in 38 countries on five continents, employing more than 176,000 people.

Henry Galbiatti, Vale's general manager for iron ore exploration, closed mines and manganese planning, explained: "When I experienced GeoVisionary, I could see it was exactly what we were looking for. The nature of our business is such that visualisation of information is vital to help us understand it, to discuss plans and to make the right decisions."

Vale has a Virtalis ActiveWall Virtual Reality system situated inside a dedicated room within the Long Term Planning Department (DIPF). Vale also has multi-screen Desktop VR systems which enable stereoscopic vision, but do not support tracking.

The Company is using GeoVisionary not just for exploration and mine management, but also as an environment for staff training. Galbiatti added:

"We hope to use the software on all our pipeline projects to help with mining, engineering and environmental matters. Already, we are finding that being able to see more data and having it in 3D, we can visualise issues and strengths within our projects much more easily and then act to make corrections faster."



CASE STUDY – UWC, SOUTH AFRICA

Virtalis designed and supplied a Highly Immersive Visualisation Environment (HIVE) to the University of Western Cape (UWC), paid for in a matched funding arrangement between the University and BP. The HIVE manipulates and models data using a wide range of industry-standard software packages to create highly detailed models and virtual environments. Principal among these are Schlumberger's reservoir and fluid modelling suites, Petrel and Eclipse, Midland Valley's MOVE 2D, 3D, 4D structural modelling software and Virtalis' GeoVisionary. This enables geoscientists to visualise, analyse and share large datasets seamlessly in an immersive, real time environment.

"Students using the HIVE initially will be reading for MScs and PhDs in the South African Petroleum Studies Program and MScs in Applied Geology, but this user body will expand as relationships with other disciplines are grown. The HIVE staff see no limit to the range of disciplines that the Virtalis solution can be applied to. It is expected that approximately 40% of HIVE's time will be booked by commercial organisations, especially those with interests in petroleum, mining and land use."

Prof. Paul Carey, Extraordinary Chair of Petroleum Geology at UWC.



TECHNICAL FEATURES OF GEOVISIONARY

GEOVISIONARY IS A COTS PRODUCT, WITH ONGOING DEVELOPMENT:

- Import hundreds of data sources, including image files, shape files, elevation models, complex boreholes, data from GOCAD, GSI3D – GXML, ECW, 3DS Max, CAD packages and more
- Dynamic link to ESRI ArcGIS with the Arc2GV toolbar
- Extrude 2D GIS data into 3D
- Import terrestrial LiDAR point cloud data
- Incorporate point cloud data
- Visualise industry standard VOXEL data
- Time-series (4D) visualisation to monitor changes occurring within a defined area in real-time
- Simultaneously visualise surface and subsurface data
- Mosaic and create streaming DEM and imagery layers
- Fly to any part of the data in seconds, using the Gazetteer or free hand
- DEM measurement, profiling and analysis tools
- Interactively change the time of day and the position of the sun
- Add text to drape onto the terrain
- Digitise and annotate features of interest and save them for use within other software
- Digitise and attribute features of interest and save as 3D shape files
- Distributable viewer software
- Virtual conferencing mode, with multi-remote access to centrally located data
- Designed for workstations, field-based laptops and immersive projection environments

“GeoVisionary is highly scalable and is able to provide “fly-through” viewing of mid-continent-scale data sets at full speed. It pulls disparate mapping data together under one high-resolution 3-D visualization environment, integrates dynamically with a suite of custom tools we’ve

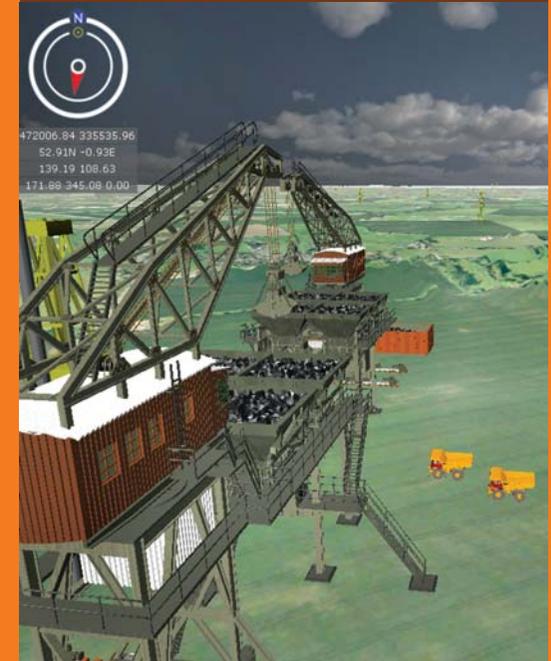
already developed for use with ArcGIS and works with logistical and data management solutions already in place.”

Don Keefer, Director of the ISGS’ Geologic Mapping and Hydrogeology Center.

VIRTALIS – 3D PIONEER

Virtalis is a world-leading Virtual Reality (VR) and advanced visualisation company. Our highly experienced team of software, hardware, electronics and design specialists enjoys an envied national and international reputation. Virtalis’ software development expertise and resource coupled with BGS’s unrivalled geoscientific knowledge, means that your data source will be able to be fully integrated within GeoVisionary and its associated viewing and interaction hardware.

Whatever your industry or role, we can prove that advanced visualisation, simulation and VR offer a valuable return on investment. We will arm you with an essential set of tools to improve your competitive position, make your life more efficient and reduce your risk.



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